DOCUMENT RESUME

ED 425 315 CE 077 631

AUTHOR	Jurmo, Paul
TITLE	Collaborative Learning for Continuous Improvement: Team Learning and Problem Solving in a Workplace Education Program. A Guidebook from a Project of the National Workplace Literacy Program.
INSTITUTION	New York State Education Dept., Albany.
SPONS AGENCY	Office of Vocational and Adult Education (ED), Washington, DC. National Workplace Literacy Program.
PUB DATE	1998-08-00
NOTE	67p.; For a related evaluation report, see ED 415 425.
CONTRACT	V198A40318
AVAILABLE FROM	Learning Partnerships, 14 Griffin Street, East Brunswick, NJ 08816-4806; Tel: 732-254-2237.
PUB TYPE	Guides - Non-Classroom (055)
EDRS PRICE	MF01/PC03 Plus Postage.
DESCRIPTORS	Adult Basic Education; *Cooperative Learning; Educational Planning; Evaluation Methods; Inplant Programs; Literacy Education; Models; Needs Assessment; *Problem Solving; Program Development; Program Evaluation; Program Implementation; Staff Development; *Team Training; *Workplace Literacy
IDENTIFIERS	*Continuous Improvement

ABSTRACT

This guidebook presents a collaborative or team-based model of workplace basic education. It is written particularly for practitioners--the adult educators and company and union representatives who do the work of planning, carrying out, and evaluating basic skills-related activities in the workplace. Chapter 1 provides background, assumptions that guided design of the 3-year workplace education project in seven workplaces in upstate New York, and components of the Collaborative Learning for Continuous Improvement (CLCI) project model: initial discussion; educational planning team; workplace needs assessment; individual needs assessments; basic skills-related activities; staff development; program evaluation planning; activities scheduling and facilities preparation; learner recruitment; implementation of instructional, assessment, and program evaluation activities; formative evaluation; and end-of-cycle evaluation. The remainder of the guidebook describes how the sites actually interpreted the model. Chapters 2-7 describe how the sites implemented the various program components and the lessons learned from that experience. These chapters cover the following: (1) the educational planning team; (2) workplace needs assessment; (3) curriculum: providing multiple learning opportunities; (4) portfolio assessment; (5) program evaluation; and (6) the central planning team. Chapter 8 provides bibliographic information and descriptions of 34 reference materials related to topics covered. (YLB)

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from a Project
of the National Workplace Literacy Program

by Paul Jurmo

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August 1998

Produced by the New York State Education Department under a grant (Project Number V198A40318) from the U.S. Department of Education. Available from Learning Partnerships, 14 Griffin Street, East Brunswick, New Jersey 08816-4806, 732-254-2237.

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Introduction and Acknowledgments

This guidebook presents a "collaborative" or team-based model of workplace basic education developed from 1994 through 1997 in New York State under a grant from the U.S. Department of Education.

The guide is written particularly for "practitioners" -- the adult educators and company and union representatives who do the work of planning, carrying out, and evaluating basic skills-related activities in the workplace. The project and the guidebook make no pretentions about having "the perfect model" which should be replicated in all other workplace education settings. Rather, our statewide team attempted -- through a three-year research and development project -- to field-test some ideas and then share our experience with others.

We have attempted to make this document accessible (with a user-friendly tone and format) and useful (with plenty of examples and resource persons and references for follow-up). The project team (listed in Chapter 7) hopes that you feel free to adapt our ideas. We also welcome questions and feedback.

The author thanks the funder (the U.S. Department of Education); the coordinating agency (the New York State Education Department); the adult educators, employers, and union representatives (listed in Chapter 7) who used their creativity to make things happen at the sites; and the learners who participated in this project.

We present our experience with the hope that this important form of adult learning, organizational change, and economic development will get the support it needs.

CHAPTER 1

Where We Started:

Background, Assumptions which Guided Us, and Components of the Project Model

Background

In November 1994, the New York State Education Department (NYSED) launched "Collaborative Learning for Continuous Improvement" (or "CLCI"), a three-year workplace education project in seven workplaces in upstate New York. Funded by the National Workplace Literacy Program of the U.S. Department of Education, this project was designed to test a team approach to workplace education which linked adult education methods to companies attempting to shift toward a high performance organizational model.

The seven sites which participated in the project were:

- *Albany International in East Greenbush (manufacturing of paper machine fabric)*
- *Albany International in Menands (manufacturing of paper machine fabric)*
- *Albany International in Homer (manufacturing of monofilaments for paper machine fabric)*
- *Eastman Kodak in Rochester (photographic products manufacturing)*
- *Delphi (General Motors) in Rochester (automotive manufacturing)*
- *EG&G Wright Components in Phelps (aerospace parts manufacturing)*
- *Elmira Stamping in Elmira (metal stamping products)*

Assumptions which guided us

This seven-site project was coordinated by a Central Planning Team (CPT) composed of representatives from the sites, the project coordinator (the New York State Education Department's workplace education specialist), two evaluation consultants, and a curriculum advisor. The CPT provided a forum in which key players in the project could define objectives and concepts to be tested in the project.

In designing the project model, the CPT agreed to try out a team-based problem-solving curriculum linked to a high-performance organizational development model. CPT members hoped to implement a "team problem solving" approach at three levels: in site-level educational planning teams, in the classroom at each site, and across sites via the CPT.

The CPT wanted to test some ideas which we had previously developed ourselves and which we had seen others developing in the fields of adult basic education, workplace education and training, and organizational development. Here are some assumptions we based this new model on:

- *Participating employers were interested in problem-solving, teamwork, and higher-level SCANS competencies and not just low-level reading, writing, and math skills. ("SCANS" is a list of work-related basic skills developed by the Department of Labor).*

- *Participating companies were trying to move toward a "high-performance" model, emphasizing teamwork and problem-solving.*

- *Good workplace education practice requires . . .*

  . . . collaborative learning (learning and decision-making in teams, reflective of how decisions are made and knowledge is shared in the workplace);

  . . . a broader mix of basic skills (rather than focusing solely on a few isolated reading, writing, or math tasks);

  . . . integration of skills with workplace improvements and employee development (to make learning relevant to both the employer and employees); and

  . . . customized measures (Each site was to develop its own ways of assessing learner needs and interests and documenting progress. Sites were not required to use any kind of standardized reading test, as it was felt that those kinds of tests did not measure the more complex kinds of contextualized skills to be focused on in the project. Sites were encouraged to try to adapt a portfolio assessment model to their particular situations, and to include group and individual learning projects as evidence of individual achievement.)

- *Employers, learners, and other stakeholders need to be involved in the process of setting goals, planning learning activities, and monitoring them.*

- *Companies need to support what learners learn, or it will likely be forgotten. (Companies need to internalize and continue to support learning.)*

- *The education providers had a commitment to the CLCI model and the skills and creativity required to carry it out.*

The CPT wanted to go beyond conceiving of workplace basic skills as "reading work orders" and move into the more reflective and complex kinds of skills which employers were asking for. These were also the kinds of skills and knowledge described in the SCANS report

and similar documents.

In putting together the project, NYSED attempted to identify companies which had an active interest in the team problem-solving curriculum which NYSED had in mind. Participating companies were also assumed to be moving toward a "high-performance" organizational model which emphasized employee education, teamwork, quality, and related concepts. It was hoped that a participatory, team-based, problem-solving curriculum would naturally fit with such workplace improvement efforts.

Components of the CLCI model

CLCI drew on models of team-based workplace education developed in Massachusetts, Canada, and elsewhere. The model emphasized stakeholder involvement in identifying learning needs, setting goals, designing and carrying out learning activities, and designing and implementing activities for individual assessment and program evaluation. By involving stakeholders in these ways, it was hoped that those stakeholders would better understand and support the education program and make sure it stayed relevant to their needs.

Stakeholders at each site would be organized in educational planning teams (EPTs) which would go through a process of planning, implementing, monitoring, fine-tuning, and reporting on program activities. In many cases, sites would repeat these activities a number of times over three years, as they completed one set of learning activities and then went on to plan another round. These activities would also often be going on at the same time and thus the following program components should not be seen as linear but more as a recursive cycle or spiral.

Here are the activities which educators and representatives of other stakeholder groups would be responsible for at each site:

1. Conduct <u>initial discussions</u> to identify who at the site is interested in exploring setting up an employee education initiative.

2. Create an <u>educational planning team</u> (EPT).

3. Conduct a <u>workplace needs assessment</u> (WNA) to clarify:

(a) the company's and workers' goals for improvement;

(b) factors which block or support progress toward those goals;

(c) whether and how basic skills is a factor;

(d) whether and how basic skills-related activities might help the company and workers meet their improvement goals; and

(e) how basic skills-related activities might be integrated with other improvement initiatives which the company and workers are involved in.

4. Conduct individual needs assessments to clarify where individuals "fit" in the above assessment of organizational needs and possible basic-skills-related activities.

5. Develop basic-skills-related activities based on that needs assessment.

6. Carry out staff development activities, to hire, prepare, and support staff to carry out the basic-skills-related activities.

7. Plan a program evaluation strategy.

8. Schedule activities and prepare facilities.

10. Conduct learner recruitment

11. Implement instructional, assessment, and program evaluation activities.

12. Conduct ongoing monitoring of progress and fine-tuning of activities (formative evaluation)

13. Carry out an end-of-cycle evaluation to identify program impacts and best practices and make decisions about "next steps."

What actually happened

Shown above are assumptions and components which we field-tested over three years. How (and how well) these ideas worked varied from site to site.

The remainder of this guidebook describes how the sites actually interpreted this model. Chapters 2 through 7 describe how the sites implemented the various program components and the lessons learned from that experience. Readers are also invited to read the evaluation consultants' reports (See Chapter 8.) for discussions of what actually happened when the above assumptions were tested in reality.

CHAPTER 2

The Educational Planning Team (EPT)

Chapter 1 refers to an upwardly-mobile "spiral" of program components or activities which each project site was to presumably carry out during the three-year project. On that spiral, one of the first things a site was to do was to pull together an educational planning team (EPT).

This chapter presents (a) the rationale behind the educational planning team concept, (b) the guidelines we prepared for setting up an EPT, and (c) how the sites interpreted those guidelines.

Why use an educational planning team?

The Central Planning Team felt that a site-level multi-stakeholder planning team was vital for these reasons:

- To succeed, workplace education programs need to have the active involvement of all key stakeholders: worker-learners, managers, supervisors, union representatives, and education providers. Their involvement helps the program to be a true partnership. Through ongoing communication with other stakeholders, education staff can more effectively identify and respond to those stakeholders' interests; in turn, those stakeholders can more easily understand and support the program.

- To facilitate this involvement, programs need user-friendly ways of involving busy stakeholders. Just as they need to prepare for their work with learners in the classroom, education staff also need to prepare carefully for how they communicate and work with other stakeholders.

- An education planning team composed of representatives from the various stakeholder groups can provide a forum for communication among stakeholders. A well-organized team can go through a process of needs analysis, goal-setting, planning of education-related activities, implementation of those activities, and ongoing monitoring and fine-tuning.

- This process borrows techniques from "continuous improvement" approaches to organizational development. By going through a collaborative decision-making process, an educational planning team can:

  -- *Ensure a high-quality, meaningful education initiative;*

  -- *Develop skills and relationships which they can apply to other workplace needs.*

Guidelines for setting up and running an educational planning team

The Central Planning Team provided training and guidelines to each site, to help them get their EPTs up and running. This section explains what the model recommended in terms of . . .

- *Who should be on the team?*
- *What criteria do you use to select members?*
- *How do you get them interested and negotiate their roles?*
- *What do you do with them in your first meeting?*
- *How do you make sure that all members can participate in a meaningful, productive way?*
- *Who will serve as leader?*

Who should be on the team?

An educational planning team should have a mix of the stakeholder groups having an interest in the workplace education effort. (We define "stakeholder" as an individual or institution which is investing something [time, money, or other resources] in the education effort and will expect something in return. Note that, in current organizational development parlance, a "stakeholder" might also be termed a "customer" of the education effort.)

Stakeholders might include workers (both program participants and other workers), union representatives, higher-level managers (production and human resource/training managers), supervisors, and education providers. If an outside funder like a state government is involved, a representative of that funding agency might also be considered a stakeholder.

What criteria do you use to select members?

For a team to succeed, members need to meet the following criteria:

Interest (motivation) Members need to see a value in the education effort and want it to succeed. They need to see the EPT as a means of ensuring a successful education effort.

Time Members need to have a reasonable amount of time to give to the real work of the team. Without it, work doesn't get done -- or is done by only a few members -- and the team isn't really a team.

Expertise While members don't have to be trained as "team leaders" per se, they do need certain kinds of knowledge and skills. For example, they need to know something about the workplace itself and the workforce. They need to be able to perform such functions as brainstorming, recording ideas, and organizing information. While some of

these skills can be developed through special training, the work of the team will be sped up if members already have at least a basic level of these skills when they join the team.

A mix of workplace roles and backgrounds As noted under "Who should be on the team?" above, members should represent a range of workplace roles (jobs). They should also be a representative mix of ethnic and linguistic groups, genders, ages, and abilities.

How do you get them interested and negotiate their roles?

If you are an "outsider" (an education provider who will be coordinating the team's efforts), you will likely have to rely on a few "inside" key contacts to help you identify potential members for the team. Go over the above criteria with your key contacts and identify some likely candidates.

Meet with those candidates and explain that you are looking for people who have the time and interest to organize and oversee a workplace education effort. Explain the steps that the team will go through. (See Chapter 1's review of the program components an EPT would oversee.) Make it clear that members need to put some time into the team, but that the exact responsibilities of members are flexible. It will be up to the team to decide who does what.

What do you do with them in your first meeting?

When you get members together in your first meeting, you might briefly summarize for them what you had told them individually. Better yet, ask members to tell you what they anticipate the team will be about, based on the discussions they already had with you. Ask them the following questions:

- *At this initial stage, what do you think the purpose of the education planning team is?*
- *What do you understand the duties of members will be?*
- *What questions do you have about the team at this point?*

Then present members with your own thoughts on these questions.

You might then go into some more depth about the "team concept" which you hope will underlie your efforts. Rather than lecture them about the history and meaning of teams, first get them to think about their own experience on teams, in groups, etc. This will give everyone a clearer picture of "where people are coming from" and elicit questions they might have about working in a team. To do so, ask them these kinds of questions:

1. *What does "team" mean to you -- what have your experiences been working with teams?*
2. *What are some advantages and disadvantages of working in a team or group?*
3. *What is required to make a team work well?*
4. *How is the idea of "teamwork" now being used in this workplace?*
5. *How do you think the notion of "team" might be applied in a workplace education*

project?

Note the participants' responses. This will serve as a record of the early thinking of team members.

How do you make sure that all members can participate in a meaningful, productive way?

The fact that someone joins a team doesn't necessarily mean that he or she will automatically feel comfortable and be able to be an active participant. Ideally, all members will be able to have a high degree of responsibility, control, and reward vis-a-vis the group's activities.

Some members, however, might lack some of the skills or the self-confidence needed to participate in a team. In some cases, there might be a history in the organization of some groups of employees not being empowered to do the kinds of things you now want them to do: speak up, take risks, make decisions.

You need to -- in a diplomatic way -- make it clear that all members should be encouraged to participate actively. Make it clear that they can talk with you privately if they feel inhibited from participating actively -- for any reason.

You also have to be sensitive to group dynamics and structure discussions so that all members get an opportunity to speak. In multilingual workplaces, you might need an interpreter or have members who aren't fluent in the dominant language form smaller groups in which they can speak freely in their own tongues. You might have to limit the amount of reading and writing tasks for members who don't feel comfortable with print. Members might take turns preparing presentations or serving as recorder, so that all get a chance to play a variety of roles.

In addition to structuring day-to-day team activities in ways to nurture full member participation, you might also organize special events to instill a team identity and open communications. You might, for example, arrange an informal lunch, picnic, or evening at the ball game. Perhaps the company has an annual volleyball tournament and your team could participate. You might, if resources permit, go to a special "team training" workshop or retreat.

Just be sensitive to the fact that you will likely have to continually nurture a team identity and infrastructure to enable members to participate fully. Don't expect members to automatically begin operating as a cohesive unit just because you've gotten them to sit down together and call themselves a "team."

Who will serve as leader?

The role of leader -- or "facilitator" or "coordinator" -- of an educational planning team is a vital one. This is the person who must do most of the "grunt" work of organizing meetings, keeping track of records, writing reports.

In fact, the team might divide this work among several different people. The more the

work of the team is shared, the more likely it is that members will take ownership for the group. This will also reduce the likelihood that one person will burn out from overwork.

The leader(s) of the team must have all of the characteristics described above under "What criteria do you use to select members?" Leaders must also have qualities like patience, perseverance, an understanding of democratic principles and procedures, willingness to listen and encourage good ideas, ability to communicate clearly, and ability to balance the many interests represented in the group. Bookstores are full of "how to be a good leader" guides. You might read a few of them.

Keep in mind that, for an educational planning team to work, good leaders are vital. The leader is the person who drives the effort and keeps it on track. This is not easy and requires a sustained, committed effort. Whoever takes on that role should think carefully about the responsibilities entailed and prepare carefully to fulfill them.

How the CLCI sites interpreted their educational planning teams

Each of the CLCI sites interpreted the idea of a multi-stakeholder educational planning team a bit differently. The teams varied in terms of their make-up, how involved members got, and what they focused most of their attention on. These factors were, in turn, determined by things which were in some cases beyond the education coordinator's control (e.g., a plant might be undergoing downsizing and, therefore, team members' attention was on matters other than education) and, in some cases, within the educator's control (e.g., the "marketing" skills of the education coordinator).

For example, when the education team at E.G.&G. Wright Products (an aerospace parts manufacturer) was first set up in 1995, the team was composed of the coordinator, the company's human resource development manager, and representatives of various departments. Over time, the make-up shifted to include more representatives of higher-level management, including the managers of the business unit (i.e., the plant manager),the quality unit, and the purchasing unit. Education coordinator Dianne Spang feels this was due to management's recognition that the EPT was adding value to plant operations, an efficient way of identifying and responding to priority needs in the plant. A "white board" tracking system and "PIF" sheets were concrete results of the initial communications course run by the EPT and were seen by management as concrete, useful products of the EPT and the program overall. Because they saw the EPT and the education program as useful, EPT members met monthly and looked at ways to use the federal grant to improve the company.

At the Albany International plant in Homer, site coordinator Paula Hayes worked with management representative Linda Holland to organize an EPT in early 1995. The EPT carried out the workplace needs assessment (WNA) described in Chapter 3. Based on the WNA, the team spent the summer of 1995 developing a curriculum (described in Chapters 3 and 4).

The EPT became less active by fall 1996, however, due to three factors: (1) the EPT's

primary focus -- organizing, carrying out, and acting on the WNA -- was completed by that point; (2) the EPT's key management representative, Linda Holland, was given a new position which required her to focus more on production than human resource issues; and (3) workers were less available to interact with the site coordinator due to increased production and due to an accident which occurred in spring of that year. By 1997, the EPT was reduced to four members, including the site coordinator.

When CLCI began in 1995, Eastman Kodak's Rochester facilities had for several years been making the transition to a team-based,"high-performance" organizational model. Also, the new company CEO was placing increased emphasis on employee training. The CLCI program model was seen as a vehicle for helping the company meet those goals.

The education provider, Rochester City Schools (RCS), had for a number of years provided various kinds of basic education services to Kodak employees. RCS staff thus were able to build on the relationships and understanding of the company culture and its educational needs which it had already established at the company. RCS and Kodak representatives agreed to form a modified version of an educational planning team composed primarily of RCS teachers and the training advisors from several company departments. This team helped with the initial planning of the program and then met every two weeks to monitor progress.

The make-up of the team changed over time but at various times included teachers, a RCS administrator, training coordinators for three company units, and the human resources director for the department within which the program was being carried out. These changes came as the company shifted personnel into new jobs, but the EPT's role in monitoring and coordinating the program persisted. The EPT scheduled classes; strategized ideas for new classes that could fit the business' needs; tracked results for the company and for the external evaluator; and addressed issues that arose within the classes or out on the floor.

In the initial EPT meetings, RCS staff explained to Kodak training staff the team problem-solving model being developed under the grant. The company representatives considered whether and how the grant's problem-posing model fit with the company's training needs and concluded it did. Company representatives had already embarked on a team-oriented continuous improvement initiative and saw how the problem-solving classes could serve that effort. The EPT thus decided to go ahead and try the instructional model in problem-solving classes for three "natural work teams" already existing in the facility. In their initial meetings with RCS staff, the three classes (each from a separate work area) identified a number of workplace problems to focus on.

The Kodak site did not carry out a formal workplace needs assessment in the way proposed in the grant. It was later found that such a broader assessment might have helped identify other educational needs and obstacles within the organization which could have been factored into program planning.

RCS staff concluded that the EPT "was an essential tool to maintain customer focus and workplace involvement." RCS "absolutely" intends to continue to use EPTs because . . .

. . . in circumstances where the business is focused on implementing significant changes in human resource initiatives, and they understand the value of training as a vehicle for successful initiation of the changes, an EPT is necessary. An EPT can predict potential problems which may occur in the running of these classes, plus it can keep the pulse of the environment so as to make changes when they are necessary.

The Delphi plant manufactures fuel injection systems for General Motors trucks. When the CLCI project got underway in 1995, the plant was in the midst of creating a new product line, with new work processes and new work teams. That line was to have volunteer employees and require better communication and attention to quality. (GM told the plant it would buy its fuel systems elsewhere if the plant didn't meet quality standards.) The basic skills program was seen as a tool for helping the plant make that shift.

Rochester City Schools (RCS) already had a history of working in this plant. Under this new federal grant, RCS staff worked with an existing team which had been set up to oversee the plant's transition to the new product line. That team had already gone through a strategic planning process which resembled the CLCI model's workplace needs assessment process. Rather than undertake an entirely new WNA, the existing planning team in early 1995 did a modified workplace needs assessment, reviewing the strategic plan which the union-management team had already developed, to clarify where the CLCI problem-solving curriculum might fit in. The EPT decided to focus the first round of instruction on helping workers to perform statistical process control (SPC) calculations.

After those initial SPC classes were carried out (See Chapter 4.), RCS brought in a new instructor in fall of 1995 to replace the original site coordinator, who had gone on maternity leave. He was to work with another product line department, one which had worked together for some time. This new coordinator, Tom Wager, realized that he needed to quickly get up to speed, to get to know the EPT and issues within the department, and to clarify what to focus the next phase of services on. Tom and the EPT decided that he should do a modified workplace needs assessment. (See Chapter 3.)

The EPT at the Albany International site in East Greenbush started off with a half dozen members and then dwindled to two members who carried out most of the work. Other members became less active due to changes in their job descriptions and an increased production load. This reduction in active membership was considered appropriate in this site, however, because while the larger team was needed initially to identify needs and get stakeholder buy-in, it was felt that only a few people were needed to perform the nitty-gritty tasks (of planning lessons, for example) which followed. Further, the coordinator appreciated having the freedom of being able to work on her own as she, by trial and error, tailored a curriculum relevant to the learners.

The down side of this was that there was not a ready-made audience for the coordinators to communicate with as the problem-solving classes began to produce results. For example,

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the coordinators would have liked to have been able to give updates to an active, informed EPT about what the workers were saying about communication problems within the company.

Lessons learned about educational planning teams

Of the seven project sites, six were successful in implementing the EPT concept. Based on their experience, those six sites generally state their support of the concept, saying that it was vital in helping the providers understand the interests and issues represented in the site, and in involving stakeholders in supporting and participating in the program. (The seventh site was essentially not ready to participate in the project and never really took the step of setting up an EPT.)

As described above, implementing the EPT concept meant different things in the six sites. For example, the make-up of the teams and the roles members performed varied considerably from site to site and even within individual sites over time. Most EPTs had members representing several company departments and several job levels (white collar, blue collar). Which departments, of course, depended on the company, its size, its needs, and in some cases who was in charge of a particular department. (People have to have time, awareness, and interest to be able to participate actively in an employee education initiative.)

At the end of the three years, site representatives gave the following feedback about their experience with the EPT concept:

<u>The value of access</u>. One coordinator concluded that a key ingredient for a successful workplace education program is "access to workers." She says:

> *I discovered that I had a tremendous advantage at this company in being able to wander freely through the building, sit in the break rooms, schedule brief meetings with "students" during work hours, etc.*

The EPT gave her access not only to representatives of the various stakeholder groups in the company but to the "constituents" of those representatives out on the shop floor.

<u>Personalities and power relationships</u>. One coordinator felt that any group like an EPT will likely have personalities and power relationships which an outside educator can't know about in advance and which could make or break support for the educational program. The EPT, nonetheless, provides an opportunity for the educator to get to know these people, the dynamics of decision-making in the organization, and issues which can be woven into planning of the education initiative.

<u>Potential conflicts within the group</u>. The same coordinator recommends that any educator entering a workplace should realize that consensus within an EPT is not a "given." The coordinator should be prepared to deal with conflicts, grievances, or lack of agreement within a group composed of different organizational stakeholders. It is important that a group, from the start, be up-front about potential obstacles to working together, so that the educator and the group don't set themselves up for unnecessary frustration.

EPTs as a forum for dealing with "sticky issues." One coordinator found that, by opening the classroom up to discussion of workplace problems, it was inevitable that groups would identify factors within the organization which undermine full worker participation in organizational change. She wondered whether and how other EPTs have done anything about those organizational obstacles if they have uncovered them.

Being consistent with how stakeholders view collaboration. One coordinator notes that it was easy for her to use the EPT concept because her agency had historically always emphasized collaboration with the companies and unions it worked with. Similarly, the EPT model works best in an organizational context which encourages employee participation in problem-solving.

The coordinator feels that, in the future, she will be more selective about what kinds of companies she will try to use an EPT model with. For an EPT to work, a company has to be willing to invest the time to make it work. If a collaborative approach is to be a feature of future government-funded programs, she would make it a requirement and negotiate it in her communications with sites. At the same time, an education provider needs to be flexible and not force anything down a company's throat.

"Selling" the EPT concept. One coordinator felt that the EPT was very effective in terms of generating interest and buy-in of all the right players in the plant. However, for an EPT to work, all those players need to be ready and willing to participate fully in the EPT.

She feels that a coordinator needs to be able to "sell" the EPT concept to potential members, as this is a new concept for most of them and they are likely to want to know "what's in it for me?"

The coordinator recommends that "marketing your program" be included in training given to workplace educators, to ensure that they know why and how to "sell" the EPT and other concepts required for a good program.

Involvement of workplace leaders is particularly important as a way of helping them to understand and support the program. One coordinator cited two work team leaders who were involved in the program's planning and early activities from the start. Those two were positively impressed by the program's impact on opening up communication channels and subsequently helped to transfer this group-learning process to how their teams operate out on the floor.

In one site, a new manager showed real interest in the program by writing letters of encouragement to participants. In another case, company managers bought into the problem-solving curriculum model and paid attention to the reports which the learners generated in their classes.

Funds and flexibility. One coordinator stated that it is also vital that a coordinator have enough funds and flexibility to cover the upfront preparations which this model requires. Decision makers need to understand that a good program typically can't be started immediately, from scratch, without adequate preparations.

CHAPTER 3

Workplace Needs Assessment (WNA)

As shown in Chapter 1 in the list of components of the CLCI model, a workplace needs assessment (WNA) is the first major activity which an educational planning team should undertake.

This Chapter (a) presents the "what, why, who, and how" of the workplace needs assessment process, (b) summarizes how the WNA was interpreted in our project sites, and (c) discusses lessons learned about workplace needs assessments.

For more-in-depth guidance about the WNA, the reader is referred to Collaborative Needs Assessment: A Handbook for Workplace Development Planners by Sue Folinsbee and Paul Jurmo. For more information about how the project sites used WNAs, see the project evaluation documents. (See the References cited in Chapter 8.)

The "what, why, who, and how" of workplace needs assessment

To help the site educational planning teams prepare to conduct workplace needs assessments, the Central Planning Team presented the EPTs with the following information in workshops and written documents in the early months of the project:

What is a WNA?

A workplace needs assessment (WNA) is a systematic way of identifying workplace basic skills needs.

It identifies those organizational needs that might be met through educational activities and those that need to be addressed through other changes in organizational policies and practices.

In particular, it documents where basic skills-related activities are needed.

Why do a WNA?

By specifying a range of educational, training, and other organizational development activities which an organization might undertake, a WNA ensures that realistic expectations are set for educational activities.

Rather than assume that a single basic skills or other activity can by itself meet all of an organization's needs, stakeholders will have a clearer picture of what role education can reasonably play.

A WNA can also identify organizational needs which can become topics for basic skills and other education and training activities.

A WNA can also build awareness, ownership, and support for an educational initiative among all levels of the workforce.

Who would conduct it?

A WNA would be the first major activity conducted by an organization's educational planning team. Such a team would oversee not only the WNA but all other components of the education program and related organizational development activities. This team would be composed of representatives of key stakeholder groups: workers, managers and supervisors, unions, and education providers. (See Chapter 2 for more about the responsibilities and make-up of the educational planning team.)

How do a WNA? (What steps are involved?)

To plan and conduct a WNA, an educational planning team should:

1. Develop a goal statement for the WNA. Clarify what the team hopes to achieve by conducting a WNA. (See "Why do a WNA?" above for possible purposes.)

2. Clarify what information the team wants to collect. Typically a WNA tries to answer these kinds of questions:

> *1. What are the company's goals in terms of improving workplace operations? What do workers hope to achieve in terms of their career development?*
>
> *2. What changes have occurred within the company in recent years?*
>
> > *a. How have products and work processes changed?*
> > *b. How has equipment changed?*
> > *c. What if any new safety or industry regulations is the organization responding to?*
> > *d. How has the make-up of the workforce changed?*
>
> *3. What factors (inside the company and outside it) currently block or support progress toward the company's and workers' goals?*
>
> *4. To what degree and in what ways are employees' basic skills a positive or negative factor?*
>
> > *a. Do employees need to upgrade their communication, thinking, and problem-solving skills to respond to those changes? If so, give examples of*

areas in which employees appear to be having problems.
b. Do employees recognize these as problems, or is this primarily a management-level concern?

5. What is the organization currently doing to help employees respond to the challenges they face? What are employees themselves doing to respond to these changes?

6. In particular, might basic skills-related activities help the company and workers meet their improvement goals?

7. How might basic skills-related activities be integrated with other improvement initiatives which the company and workers are involved in?

3. Decide where you'll get your information and design information-gathering activities. WNAs typically use interviews, focus groups, and possibly questionnaires to collect the information they need from a representative sampling of the various stakeholders represented in the organization (and on the education planning team). Information might also be gleaned from documents (e.g., annual reports, strategic plans, and education and training records) and through observation of workplace and education/training activities. Help the team decide how it will collect the desired information from those sources. Field-test your activities and refine them.

4. Collect the information you need using the activities you designed.

5. Organize and summarize the information collected.

6. Analyze that information and prepare a report with recommendations.

7. Present your report and agree on actions to take.

8. Prepare an action plan and follow up to ensure that actions are taken.

How does a WNA differ from other types of assessments done in workplace education programs?

Until recently, assessment in workplace basic skills programs has tended to follow a model developed in school settings. In this academic model, assessment focuses solely on the individual and tries to determine the individual's ability to perform certain tasks.

More recently, workplace educators have used "literacy task analysis" (a "literacy audit") to analyze the basic skills requirements of particular job tasks and then assess whether workers could meet those skill requirements.

A WNA broadens the focus of assessment to include the organization within which the individual (in this case the worker-participant) operates. A WNA assumes that a healthy organization requires continuous improvement (change) by not only individual employees but

also by other stakeholders in the larger organization.

A WNA is a procedure for assessing the organization's ability (readiness) to effectively use the knowledge and skills of its workforce. When combined with assessment of individual workers' abilities, a WNA can give a comprehensive picture of what the organization and the individual workers need to do to meet their goals for continuous improvement.

How the CLCI sites interpreted workplace needs assessment

Four of the project sites conducted fairly extensive WNAs. Two others felt that they already had a good sense of what the companies and workers needed based on previous strategic planning carried out in the companies and on the education providers' prior experience working in the sites.

Here is a summary of how the sites used the WNA methodology:

- At Albany International's East Greenbush plant, the coordinator worked with her EPT to conduct an extensive WNA. The coordinator conducted many site visits, interviews, focus groups, observations, and reviews of documents. She relied in particular on the input and insights of a human resources manager who had a special interest in what it takes to shift an organization into a "high performance" mode. The WNA report identified "communications" as a focal point for the first round of learning activities. The process showed that the plant was, like many others, struggling with the question of how to continue its shift toward a "quality team" environment. Stakeholders saw the CLCI program as a tool for helping the organization to resolve that question.

- The site coordinator at the Albany International plant in Homer made many visits -- often during early morning hours -- to the plant and talked with individual workers when they could spare a few minutes on the shop floor. The resulting WNA report indicated that the company initially wanted to focus on helping extrusion machine operators understand where paperwork fits into the production process and to deal with particular paperwork tasks required in their jobs. The paperwork allowed workers to document noncomforming products and problems which lead to defects. The paperwork was a combination of narrative descriptions, checklists, and computations filled out by workers. The company also wanted the education program to help improve teamwork, communications, and problem solving among workers. The EPT anticipated that additional needs would emerge once instruction around the above objectives got underway.

- At the Albany International plant in Menands, the site coordinator worked with the plant's EPT to conduct a WNA in early 1995. It showed that the plant's workforce consisted of experienced workers with strong technical skills and a high quality ethic but many lacked sufficient "softer" skills required in a team environment. The WNA thus indicated a need for educational activities which helped employees better work in teams, communicate, and solve problems.

When employees were asked what workplace problem(s) a communications and team problem-solving program might focus on, they responded that many workers were having trouble understanding the company's financial benefits package. The focus for the first round of instruction thus used the company's insurance and retirement benefits package both to teach reading, writing, math, and problem-identification and -solving techniques, and to provide opportunities to practice proactive teaming skills such as listening and negotiating.

Put another way, the program was to help workers develop the skills they need to be problem solvers and process improvers.

▯ When the program began at the Delphi plant in Rochester, the EPT did not conduct a formal WNA per se. The team felt that they already had a good grasp of what basic education-related activities were needed because of previous strategic planning activities and because the education provider had a considerable first-hand knowledge of the plant from earlier education programs they had provided there. Based on this prior needs analysis and experience, the EPT agreed that, in the first round of educational activities, the program should focus on math skills needed to carry out statistical process control (SPC) functions.

As that SPC course wound down, another instructor joined the program. He was to work with another product line department, one which had worked together for some time. As a newcomer working with a department which hadn't previously been involved in this federal project, the instructor and the EPT decided that he should do a modified WNA to determine what needs to focus on in his curriculum. The WNA indicated that the next phase of instruction should help work teams to be more autonomous by enhancing the teams' problem-solving and team-building capacities.

Workers indicated that they didn't simply want "another class" which would teach them things they never applied in reality. It was agreed, instead, to structure learning activities as problem-solving teams whose members would identify a problem and use a problem-solving method to analyze and then solve real problems the workers faced. Further discussions identified several technical and communications problems, including one with continual rejects which had stymied plant engineers and another of constant re-checking which wasted employee time.

▯ At the E.G.&G. Wright plant, the coordinator attended corporate training sessions as a participant-observer. She thereby familiarized herself with the issues the company and workers were dealing with, to ensure that her instruction would meet real needs. Among other things, she found that shop-floor personnel weren't getting access to team-related training that higher-level employees were. She concluded that the initial round of instruction should focus on "listening and reflective response," tying the program in with the company's interest in conflict resolution. This process also showed that many in the company wanted introductory computer-related training, to enable all workers to handle

the plant's computerized information system. The EPT decided to conduct such training in the second year of the program.

Lessons learned about workplace needs assessment

The WNA's potential. The coordinator at the Albany International site in East Greenbush stated that she "loved the WNA and wouldn't change it at all. It's a valuable orientation for everyone," especially for an outsider like an education consultant. It "gives background and context and it really does integrate the program into the social context of the organization and clarifies the readiness of the organization to change."

In the words of the coordinator at the Albany International plant in Menands, the WNA was "great." She feels it was important, as it gave her a chance to get to know individuals she would eventually work with. She learned a lot by going out on the floor and spending time with them.

The same coordinator said that she intends to use the WNA process in future workplace education situations. She described the benefits of the WNA concept as follows:

> *Designing the WNA within an EPT setting causes the group to work toward a greater commonality of focus. The first steps toward resolution of any problem are (1) recognition that there is a problem and (2) definition of the problem. Administering the WNA in a safe, small-group setting prompts further discussion resulting in additional information which can be brought back to the EPT. In some instances, the initial problem which the EPT saw as most significant and/or urgent was not the issue which the class perceived as most significant and/or urgent.*

The coordinator at E.G.&G. Wright also felt that the WNA was very useful. It helped her "get a handle on the culture of the company. As a trainer, you need this to be able to respond to their needs."

The importance of trust. The coordinator at E.G.&G. Wright emphasized that trust is vital if informants are going to give accurate, truthful feedback in a WNA. This trust can be increased by having the coordinator do an upfront explanation to employees of the purposes and guidelines for the WNA before embarking on it.

Obstacles to conducting a WNA Site coordinators cited several potential obstacles which those interested in using a WNA should be aware of:

> Time constraints: One coordinator acknowledges that many educators might not be comfortable putting in the amount of time that an extensive WNA requires. This lack of comfort might be due to limited time (e.g., getting out on the shop floor at 5:00 a.m.) or a lack of familiarity with the factory environment or blue-collar populations. Nonetheless, the coordinator feels that, though time consuming, individual interviews are a very valuable way to collect information and, at the same time, develop a relationship with workers.
>
> She says that, for this approach to needs assessment to work, educators need support from both the company and from their own educational institutions.

Educators need to be given the time, trust, and flexible work schedule to allow them to be on the worksite at odd hours and to do the customized, just-in-time curriculum development work and instruction which a good program requires.

Sexism: One problem encountered in conducting a WNA by a woman site coordinator was the fact that "it's a man's world over there" and that a woman like herself would tend to find it hard to communicate and be taken seriously.

Need to be efficient with available resources. One coordinator says that it also helps to have had a history of working with companies and to build on the relationships and knowledge already exisiting. Otherwise, an outsider must take a lot of time developing trust and identifying whom to work with.

She would also make future WNAs more concise and focused, to avoid redundancy and to save time She recommends that an EPT continually update or "revisit" its original WNA from time to time, to re-build the EPT and to keep focused on learning needs as they emerge.

The coordinator at E.G.&G. Wright reported that, due to time constraints, she might do more focus groups and fewer one-to-one interviews when conducting WNAs in the future. She might also send out print questionnaires or electronic versions, where feasible.

The importance of the EPT. The coordinator at E.G.&G. Wright said that the EPT was vital in making the WNA work, as it identified the questions to ask and then helped carry out the survey and confirmed the relevance of the WNA's findings. The EPT provided a forum in which employees and managers both agreed on the same learning needs.

Other challenges. The coordinator at Albany International in Menands noted a number of challenges. She says that deciding what questions to ask and how to word those questions can be difficult. Administering the WNA is "time and money not spent teaching." And "responses may vary widely from unit to unit and shift to shift, reflecting vastly different cultures within the same facility, thus making generalized conclusions impossible." EPTs need to acknowledge these challenges and be prepared to deal with them. The coordinator says:

> *"I believe it's important to have an informed team -- an EPT for example -- to formulate the initial questions, since the direction and the wording of the questions will significantly impact the information returned as a result of the WNA. If the focus is off base, or if the questions are slanted or loaded, the WNA can become almost useless, or even worse, a tool of the administration (or any other single stakeholder group) to support (impose) its point of view."*

CHAPTER 4

Curriculum:
Providing Multiple Learning Opportunities

After conducting a workplace needs assessment, an educational planning team can proceed with planning the various basic-skills-related activities which will help meet the learning objectives identified in the WNA. The team should also develop a plan and tools for individual assessment and program evaluation. (See Chapters 5 and 6.)

All of these preparations should go on more or less simultaneously, before instruction and related activities get fully underway. This chapter will focus on instructional activities or the "curriculum" used in the CLCI sites. As in other chapters, we will here (a) summarize the curriculum guidelines which the CPT presented to the sites, (b) describe how the sites interpreted those guidelines, and (c) discuss lessons learned from our experience with curriculum.

The curriculum guidelines developed by the Central Planning Team

In the initial months of the project, the CPT presented a number of concepts to repesentatives from the EPTs during staff training workshops and in a number of handouts. The CPT hoped that the EPTs would "run" with those concepts and tailor them to the creation of curricula which responded to the learning needs identified in their WNAs.

Here are the key concepts which sites were asked to work with:

"Curriculum": A working definition

We consider curriculum development as more than merely pulling together a collection of workbooks and job-related materials and "teaching" them. It is a more-comprehensive process. This is our working definition of "curriculum":

> *"Curriculum" is an ongoing process of identifying learning objectives, designing activities to help achieve those objectives, and then implementing and continually improving those learning activities.*

Roots of our curriculum model

This "Collaborative Learning for Continuous Improvement" approach to workplace education has been influenced by concepts from the worlds of organizational development, adult education, evaluation, and elsewhere. These concepts include:

From organizational development

The learning organization:
From Peter Senge:

- *"Learning has very little do do with taking in information." Rather, learning is "creating and building the capacity to create that which you previously couldn't create."*
- *"Team learning is vital because teams, not individuals, are the fundamental learning unit in modern organizations."*
- *"The discipline of team learning starts with 'dialogue,' the capacity of member of a team to suspend assumptions and enter into a genuine 'thinking together'."*
- *"A learning organization is a place where people are continually discovering how they create their reality. And how they can change it."*
- *"In a learning organization, there is a special spirit of an enterprise made up of learners."*

TQM and continuous improvement

A way of viewing work which challenges all involved in an organization to continually question "Whom are we trying to serve? What do they need? What do we need to do to ensure that their needs are met?"

High performance organization
An organization which:

- *follows a continuous improvement ethic to produce high-quality services and products which meet customer needs.*
- *provides the necessary supports to all employees (i.e., a high quality of work life) to enable them to produce high quality services and products.*

From adult education (especially literacy and workplace education)

Contextualized learning
A concept from research on how people learn. Holds that learners best develop skills and knowledge by applying what they already know to meaningful tasks. Through such practice, learners gradually develop their own strategies for accomplishing those tasks (i.e., they "master" those tasks).

Metacognition
A process of improving performance in any skill area through thoughtful practice. The learner reflects on what she already knows about a particular task, practices applying one or more skills to that task, reflects on her performance, and refines her strategies for future use.

Whole language
A concept from psycholinguistics which argues that thinking, reading, writing, and oral skills are closely related psycholinguistic processes and should be developed simultaneously in integrated, natural, meaningful, applied learning activities.

Participatory education
The notion that adult learners see learning as more meaningful and invest themselves more in the learning process when activities are structured to give them responsibility, control, and reward for what goes on in an educational program.

Elements to be factored into the curriculum

Problem-posing
A participatory method in which learners identify problems/ issues/concerns which they face, analyze the causes of those problems, and then develop strategies for responding to those problems.

Collaborative learning and decision-making
A notion developed in workplace education programs which holds that, for stakeholders (eg., managers, supervisors, union representatives, learners, educators) to support and benefit from an education program, they need to have active roles in planning, implementing, monitoring, and improving the program.

SCANS
A U.S. Department of Labor listing of five competencies which all U.S. workers should have: resources (effective use of resources), interpersonal (working with others), information (finding and using it), systems (understanding complex relationships), and technology (uses a variety of technologies). Underlying these five competencies are a range of "foundation skills" (basic language and math skills, thinking skills, and personal qualities), as well. This pushes -- and allows -- workplace education programs to go beyond focusing only on a few discrete -- and often disconnected -- reading, writing, and or math tasks. SCANS better reflects the complex demands actually put on workers in the emerging U.S. workplace.

Portfolio assessment
An approach to identifying, documenting, and reporting what learners need and want to learn, progress toward those learning goals, and what needs to be done to further help the learner succeed. Portfolios tend to include real-world ("authentic") artifacts (such as sample writings, projects created by the learner, etc.) which demonstrate what learners can do rather than standardized tests. Portfolio assessment is seen as a vehicle for helping the learner to take more responsiblity for reflecting on his or her learning. This is in contrast to more conventional assessment which keeps control of assessment and learning more in the hands of the teacher.

Learners in a workplace education program can use portfolios to store evidence of how they are using basic skills to deal with real tasks they face in their lives as workers (and possibly in their lives outside work, too). Such evidence can be more meaningful to workers and employers than standardized test scores.

What constitutes good practice: Our assumptions

We borrowed from these concepts and wove them together to produce an approach to curriculum based on the following assumptions about what constitutes good

practice:

- *For an employee basic skills initiative to have lasting impact, it cannot "stand alone." It must, rather, be integrated systematically with other education, training, and organizational development activities to enable learners to apply what they are learning to the continuous improvement of the organization and their own personal situations.*

- *Stakeholders in the host organization must have a common vision of the role of a basic skills program in the larger process of organizational improvement. They must commit themselves to actively participating in the planning and continuous improvement of the education program. They must see themselves as "learners" who will themselves take the time to develop the knowledge and skills needed to make such an integrated approach to basic skills education work.*

- *In practical terms, all stakeholders would participate in a variety of well-planned activities in which they draw on their existing knowledge and skills and apply them to particular continuous improvement tasks.*

  + *In the case of the site-level education planning team, members will set goals, develop knowledge and skills they need to support the program, help design the program, help implement educational and related activities, and continually monitor progress and improve the program.*

  + *In the basic skills and related educational activities at the "classroom" level, learners and facilitators/instructors will similarly set learning objectives, develop knowledge and basic skills in the context of posing problems and developing action plans for resolving those problems, and continually improve the education program.*

  + *Education staff will similarly work at the site level and across sites with other education staff and state-level resource persons to set goals, develop knowledge and skills they need to do the job, develop strategies and tools, and refine the overall program and activities at the site level.*

- *In such a model, all stakeholders at all levels adopt a similar "collaborative learning for continuous improvement" ethic and procedures. They thereby continually test the model and see how it can be adapted and refined at the site level. The basic skills program"thus becomes a vehicle for all stakeholders to develop their own knowledge and skills related to continuous improvment and, in so doing, develop learning organizations within the institutions they work in.*

How the sites interpreted curriculum

As with other components of the CLCI model, the above curriculum guidelines were interpreted differently from site to site. Some sites chose to focus primarily on "problem-posing" (i.e., helping learners to identify workplace problems and then map out solutions for them, while also developing various "basic skills"). Other sites focused more on particular

issues like "improving communications," "math," "introduction to computers," or "understanding how to use the company's benefits package."

Whatever the exact focal point of instruction, "problem-posing"and "problem-solving" were in most cases woven into the curricula used at the sites. Within the CPT, there was initially some colleaguial tension about how much to require the sites to focus on "teaching the problem-posing/problem-solving method" versus encouraging sites to respond to whatever learning needs emerged from their workplace needs assessments. In effect, the CPT realized that there was both a value in focusing on problem-solving as a SCANS competency while also being true to the workplace needs assessment process which they had been asked to use.

The CPT eventually compromised and agreed to encourage the sites to provide instruction which responded to whatever basic skills needs were indentified in the WNAs, but to put special emphasis on incorporating problem-solving techniques wherever appropriate.

This section describes how the sites interpreted these curriculum guidelines.

Problem-solving at Eastman Kodak

The content and formats used in the curriculum

The classes at Kodak merged the CLCI's version of a problem-posing model with Kodak's own internal problem-solving process which, in turn, drew heavily on the problem-solving model developed at Cornell University. The Kodak classes were to analyze the causes and possible solutions for various problems and develop action plans to present to the EPT and management representatives.

In one class, learners dealt with the question of whether and how workers can be rotated to different jobs. The team concluded that women were often not able to handle some of the heavier jobs historically assigned to men, and they recommended a way to ensure that workers were only rotated into jobs they could handle rather than to expect every worker to be able to handle every job. This was seen as primarily a "social" rather than "technical" problem.

Another class looked at the related question of how to ensure the quality of the film containers it produced, how to track the cost of scrap, and how to reduce the amount of scrap. This was seen as a problem which was more "technical" in nature.

Another team dealt with the resistance of some people to work with others in a team situation (a "social" problem).

From this experience, one instructor concluded that the problem-solving model has great potential but that it might be best to focus -- at least initially -- on problems which are more "technical" in nature rather than on "social" (interpersonal, cultural) problems. The latter are typically "sensitive" and uncovering them can lead to discord and hurt feelings which can then lead learners to not want to participate in the problem-solving

classes any further.

As these problem-solving classes proceeded, it became apparent that some learners had particular basic skills problems (e.g., lacked basic reading, writing, math, or ESOL skills) which could not be dealt with effectively in the classes. RCS staff also felt some workers could benefit from "learning-to-learn"-type activities, including identifying one's own learning strengths and styles, and strengthening one's learning and presentation skills. EPT members felt that, though the problem-solving classes were generally effective in helping groups to be able to work together to deal with common problems, there needed to be additional opportunities for individuals to deal with specific "basic skills" needs outside the group.

Through individual counseling, teachers encouraged those learners to take advantage of the other classes, tutorials, and computer-assisted learning opportunities offered by the company. These forms of instruction were often carried out by the same RCS instructors who had taught the problem-solving classes.

In addition to these more general basic skills and learning-to-learn activities, the EPT found a need for more contextualized instruction in such areas as math (measurements and quality calculations for the specialty business unit), and writing and oral communication skills (for the peer appraisal process).

RCS has, through its experience at Kodak and other workplaces, developed a battery of instructional practices. These include project-based instruction; sensitivity to learning styles in lesson plans; and curricula contextualized either to a business as a whole or to a particular department of that company.

Problem-solving at Delphi

In mid-1996, Rochester City Schools (RCS) instructor Tom Wager joined the EPT at the Delphi plant. His task was to develop problem-posing classes which would follow up on statistical process control math classes conducted there during the previous year by RCS instructor Gina Porter. (See "Statistical process control at Delphi" below.)

In July, Tom spent time interviewing individual workers to "obtain baseline information (about what they did on the job and problems they faced), ensure they had an understanding of the objectives of the next phase of instruction (i.e., the problem-posing classes), and to develop rapport." By July 22nd, classes were underway. As Tom explains it:

> *"We began by focusing on learning styles to develop an appreciation for the potential diversity of the team, and some basic ideas for functioning of a team and problem solving.*
>
> *"During August, we worked on problem identification and problem analysis. Management had assigned the problem, but the teams had to develop an understanding of the problem by deciding who could help give them insight and what*

data were needed (to understand the problem more fully).

"The team had the challenge of dealing with a very complex, long-standing problem that had baffled engineers and already had significant resources assigned to it. The team wanted to figure out what was causing a leak in a meter body which was causing a high number of product rejects.

"They worked diligently to grasp the situation so they could have some impact and produce a potential solution. In addition to solving this particular problem, it was hoped that the class would help problem-solving teams to begin regularly to process day-to-day problems.

"As the team got underway, a problem emerged: Due to outside factors, the team membership was undergoing change and was being reduced in size. Nonetheless, the core that remained undauntedly pursued their assignment.

"The biggest challenge was that the team's problem seemed to trace back to the system and people themselves. The problem itself was not too technical. Management encouraged them to come up with non-traditional solutions. That seemed to free them up in dealing with their assignment.

"Creating and delivering the midpoint presentation occupied the end of August. The participants did an excellent job and management seemed pleased. One worker asked a manager what he thought of the presentation. The manager said the presentation was beyond his expectations.

"The team progressed into brainstorming solutions to their problem immediately after Labor Day. The problem they were working on had been brought to the company's attention by a customer's complaint. A process engineer assigned to deal with the problem visited the team. He compared the potential solutions which other engineers had generated with solutions which the team had brainstormed. He brought five of the team's solutions back to engineering for consideration. That attention from the engineering department reinforced the team's efforts. The team went on to finish brainstorm ing potential solutions, settled on a few that were most workable, and created action plans for them."

The team thus produced several outcomes: (a) well-thought-out solutions to a problem which had nagged the company for some time, (b) team-problem-solving skills which participating workers could continue to apply to other workplace problems, and (c) a problem-solving course (with objectives, learning activities, a problem-solving methodology) which could be used in the company in the future.

Paper flow at Albany International at Homer

Oganizing the first round of learning activities

Once it was clear to the EPT at Albany International in Homer that paperwork

would be the initial focal point for learning, management representative Linda Holland and another company representative developed a "model portfolio." This was a collection of properly-completed workplace paperwork. From that portfolio, the EPT then developed a criterion sheet describing characteristics/ indicators/examples of properly-completed paperwork.

Site coordinator Paula Hayes then showed the model portfolio (with criterion sheets) to the production area employees and asked them to collect samples of their own paperwork over a period of several weeks. She gave written directions for this task as a way of determining whether the participants can follow written instructions.

Over a two-week period, learners gathered samples of their work in working portfolios. This process proved to be a bit tedious, at it required workers to carefully collect, copy, use, and store 14 pieces of paper in their folders. Linda and Paula reviewed the documents to determine whether/how workers perform particular required tasks. (Linda and Paula were the only EPT members to see these documents, to ensure confidentiality.)

This review process was in itself a lot of work -- especially for Linda who was the authority on what constituted properly-completed paperwork. Linda reviewed 14 documents for each of the 30 employees who returned them.

In some cases, the employees demonstrated their "best work" (their strengths) and in some cases they showed the limitations of their current abilities. From these working portfolios, the EPT identified training needs to focus on in instructional activities.

The resulting information was recorded on a specially-designed chart.

<u>The content and formats used in the initial learning activities</u>

In the initial round of learning activities, instruction was a combination of one-to-one tutorials and group workshops. The former allowed Paula to work with individuals to focus on their particular needs and thereby avoid forcing learners to learn things they already knew. (The one-to-one format also allowed Paula to fit instruction into the busy schedules of workers.) In general, activities focused on the above-described paperwork tasks.

As the workers returned their portfolios in late 1995, the EPT quickly took note of particular problems which were apparent in what was turned in. EPT members were able to do a quick turn-around and respond to those problems with targeted, customized one-to-one instruction carried out in individual conferences. Typically, a learner would be shown a better way of carrying out a paperwork task, the learner would go out and try it on the floor, and then the learner would return to show the instructor how she or he did and to get additional guidance.

Because several workers appeared to be having trouble filling out accident reports, the EPT decided to organize a workshop to help those workers understand how to deal with that common problem.

The portfolio was thus seen as a focal point for learning activities, rather than merely as an "assessment" tool tacked on to instruction. Learners used materials from their portfolios, revised them, added new ones, and thereby documented what they were learning as they proceeded. This process helped learners to clarify their needs for future learning activities while also documenting in one place -- in a "mastery" portfolio -- what they knew. For example, the learners' portfolios demonstrated their ability to follow directions and make choices. In the process, the instructor identified who the "experts" were (i.e., those with particular expertise in various areas) and got them to help in the instructional process, as mentors and/or classroom resource persons.

The group workshops allowed learners with common learning needs to work on them together with Paula and Linda.

Paula explained to the learners that collecting items for the portfolio should not be seen as a "test" or threat. She said that, if these assessment activities appeared to uncover "gaps" in learners' knowledge, these gaps shouldn't be seen so much as personal flaws as indicators that they weren't given adequate training in the past. Despite these reassurances, however, a few workers appeared to be reluctant to return their completed documents.

Paula felt that this mix of one-to-one instruction and short, focused workshops is a departure from more-common workplace education approaches which try to "fit" busy companies and workers to traditional classroom formats and schedules.

This process also created an atmosphere for ongoing career development and learning.

Subsequent learning activities

After the paperflow course ended, Paula focused on designing a different version of the portfolio. This new version was a checklist containing steps required for various procedures or tasks. It was designed to enable workers to use with each other.

For example, one operator could use the checklist to observe how another, less-experienced worker carried out the steps of a particular job procedure. When the steps were done, the observer checked them off on the list.

Paula developed these kinds of check-lists for several of the 45 training modules which the company wanted to carry out with all extrusion equipment operators.

She saw this as a tool to help workers develop a number of SCANS competencies, including observation and documentation skills, understanding systems, and inter-worker communication and problem-solving. It is a text-based tool to help people assess their own needs and those of co-workers and, ultimately, to do their jobs better. This is a different mode of helping workers develop these skills than a more traditional classroom format.

To develop such an approach to learning requires involvement of one or more technical experts, perhaps including experienced operators.

Resources required to develop learning activities

To enable Paula to do this work, the company gave her an office and computer to use. She feels that this intensive exposure to the company -- and her close work with company representatives -- allowed her to better understand the company and otherwise integrate the basic skills-related activities with other technical training activities.

Paula states that the company's invitation for her to expand her role there was an indication that the company felt comfortable with her and saw the value of investing more of the company's own resources in an integrated education-and-training effort. She says that this recognition is due to the fact that she spent almost a full year on-site getting to know stakeholders and their needs.

She feels that her experience at the plant has allowed her to develop a process for program development and needs assessment which can be transferrable not only to other training needs at this site but to other sites as well.

Statistical process control at Delphi

The process used to develop the curriculum

Rochester City Schools (RCS) staff had already had a history of working in the Delphi auto plant. Under this new, federal grant, RCS staff worked with an existing team which had been set up to oversee the plant's transition to a new product line. In early 1995, the team did a modified workplace needs assessment, reviewing the strategic plan which the team had already developed, to clarify where the CLCI problem-solving curriculum might fit in.

Because statistical process control (SPC) was a clear concern, math instructor Gina Porter devoted special attention to finding ways to make math instruction relevant. She worked with managers, a quality analyst, engineers, and others on the shop floor to review what kinds of math and communications functions were of particular concern. She found that SPC was needed to help employees keep track of output from the new, precision machines being used to create parts for the fuel injection systems.
Each machine produces statistics charted on a graph, which show the numbers of parts produced and measures of the quality of the product. Workers need to be able to read those graphs; understand the mean, medium, mode, and range of the statistics; and make decisions based on that understanding.

Gina developed a focused workshop to help workers understand those math functions. They would then practice working in groups to make decisions about whether and how corrective action was needed.

The content and formats used in the curriculum

In the second half of 1995, three groups of learners met in classes of approximately ten workers. Most participants were motivated to "clear out the cobwebs and try their hands at" upgrading their skills in this area, which they saw as important. In a typical class, participants worked on their own and in small groups. They focused on the vocabulary, concepts, and math functions contained in the charts. This understanding was necessary to enable them to talkwith engineers, to diagnose and solve problems. Learners also developed self-esteem and personal motivation, oral communications, and information-finding skills. All of these are important for ISO 9000 certification as well as for day-to-day quality operations and preparation for further training.

Gina felt that all levels of management (not only higher-level managers but supervisors, as well) needed to be receptive to the increased decision-making and involvement of shop floor workers. This would require changes of attitude at the management level. This is not always easy, given the busy schedules and multiple concerns of managers and historic relationships and dynamics between shop floor workers and supervisors.

Elements of a typical lesson plan

The SPC math curriculum (called "SPC Training") consisted of two three-hour sessions:

Day 1: Learners focused on statistics on the MetriStat charts used on the floor.

Day 2: Learners focused on team-building and problem-solving, using simulations of a PEP team situation to practice making decisions and solving problems shown on the MetriStat charts. (For example, they were given a chart with data in the red zone. They needed to analyze what the problem was and then decide what to do, using flow charts which showed what steps to follow to solve particular problems.)

The problem-solving exercises proved to be very popular and were seen as relevant by learners. Learners became better at understanding and applying some of the team problem-solving training they had received previously, some of which might have been too complicated, with too many steps.

Gina relied on input from the EPT to help her develop the flow chart used in these activities. Learners also gave her feedback on the chart, and she revised it as learners got more experience using it.

Gina used this curriculum three times, revising it after each iteration. She eventually felt she could use it elsewhere, incorporating different charts and data. She acknowledged that plants still geared to more-traditional ways of solving problems might not feel comfortable with this curriculum. In those traditional settings, workers might expect that their supervisors will make the decisions and therefore see no relevance in learning how to solve problems themselves. She felt, however, that as higher-level managers go through team training themselves and ISO certification requires more shop-

level decision-making, these traditional ways of making decisions will inevitably change.

Other support activities
Gina also oversaw activities at the plant's skills center, which has computer-assisted activities and other services. In that capacity, she provided informal tutoring and counseling to workers. These additional supports supplemented what she did in her math courses.

Improving communications at E.G.&G. Wright Products

The process used to develop the initial curriculum

In the initial curriculum development stage in 1995, E.G.&G. Wright site coordinator Dianne Spang sat in on company team training sessions conducted by an outside corporate trainer.

To further clarify learning needs, she subsequently met with groups of learners and asked each group to do an illustration which portrayed their workplace. One group portrayed the company as an aircraft named the "SS Wright Products," which was flying high but having to evade various kinds of "missiles" (corporate challenges) which were trying to shoot it down. Another group portrayed a mouse in a maze, trying to find its way through unknowns and other challenges.

In another activity, learners were asked to bring three questions back to the workplace, asking co-workers about work-related needs, goals, and obstacles.

Through such interactions with learners, Dianne identified areas where productivity and communications are blocked and possible areas for process improvement. From these investigations, Dianne identified a number of possible goals and projects for each class. The groups also showed that there are various ways of interpreting the workplace and needed improvements, and that there is a value in getting input from a variety of perspectives and individuals.

The content and formats used in the 1995 curriculum

Dianne organized learners into four groups, each with an average of eight participants. In each group she attempted to mix employees from different departments (e.g., engineering, drafting, assembly, machine shop, testing, and final inspection/shipping) and levels (upper level "leaders," floor managers, and floor workers).

Each group focused on a different workplace issue or problem which it had identified in the initial needs assessment phase. The issues were:

- *How to develop a "mother board" system for tracking where work orders are in the production process.*
- *How to set up an on-site training system and facility (using in-house experts as*

trainers, using actual job-related problems and products in the training, etc.)

- *How to clarify the skill requirements of each job category and then develop a cross-training system to enable employees to prepare for other jobs.*

- *How to develop a problem-tracking sheet to enable employees to analyze causes of defects and re-works and to avoid such problems in the future.*

The four groups met an average of seven times each in two-hour sessions, twice a week for a month in late 1995.

Each group went through a variation of a problem-solving activity to deal with the issue it had agreed to focus on. They identified "glitches" in the system and developed plans for the above kinds of actions to counter those problems.

In the process of preparing their plans, learners developed various kinds of research (e.g., information-gathering and -organizing) and presentation (oral and written language and math) skills. Although skill levels and expertise varied among team members, more-advanced learners tended to resist dominating the team process, and less-confident learners were encouraged to "stretch" themselves.

As they developed their action plans, each participant was expected to go out on the floor and present the team's draft recommendations to three co-workers. Learners noted the co-workers' responses and brought them back to the group. The group in turn incorporated those responses into their final presentations.

Participants were encouraged to decide what roles they would play when their groups presented their action plans to the plant leadership team. (Most made an oral presentation, but one participant preferred to organize the slides on the overhead projector.) Each group member was asked to prepare a "script" which he/she could refer to during the presentation.

The groups made their presentations in late 1995. The leadership team considered the plans for four weeks, then asked the groups to be more specific about costs of their recommended actions. Dianne subsequently worked with some of the groups to come up with budgets.

A communications course at Albany International in East Greenbush

The content and formats proposed for the initial phase of the curriculum

Based on the WNA conducted by the Albany International EPT at East Greenbush, site coordinator Margaret Shirk anticipated that the content of the first round of instruction would be a 15-hour introductory ("foundation") course titled "Skills in Context: Communication and Knowledge Systems at East Greenbush." Here is Margaret's description of the course:

"The objectives of this course focus on developing the following skills and knowledge:

"-- communication skills for speaking and participating in a variety of situations including problem solving, decision making, future training, and day to day questions and issues.

"-- strategies for the organization and oral presentation of information.

"-- learning skills specific to individual learning from written directions and manuals (technical reading), oral instructions and presentations in formal learning contexts such as classrooms, meetings, and committees, and on-the-job training.

"The goal of this course is to develop the skills and strategies needed for employee participation in solving job problems, improving job-specific skills, and planning for future education and training for the continuous improvement of work-related and individual abilities and skills. By focusing on communication and learning skills, this course will provide a context to develop a positive relationship between the human and technical systems that employees participate in here.

"This course will develop an understanding of work and education in America, with an explicit emphasis on developing learning skills and communication skills. It will serve as the foundation for all subsequent courses. These skills and knowledge also establish a context for better understanding 'the big picture' that shapes the actions and fortunes of individual companies and their employees."

The course was to be "problem-posing" in the sense that it would provide a framework within which employees would be able to identify specific issues, concerns, obstacles, and goals around which they want to focus learning activities. Margaret anticipated six different learning groups, all using the same framework but with different specific issues (e.g., communicating with supervisors and co-workers, preparing quarterly reports) unique to each group.

This process of customization (i.e., working out learning goals, etc.) would in itself develop participants' language skills and abilities to identify needs and problems. This course would fit the culture of the plant because all employees had gone through TQM training and understood this kind of "lingo."

In addition to focusing on workplace-specific issues, the course was to focus on learning and education. It would try to get participants to to reflect on school and other prior learning experiences, to put workplace learning in a different light and make their assumptions about learning more explicit.

Margaret also wanted participants to write a job description and use it as something to add to and elaborate on over the course of the program. This would help them look at their own work and identify how they use SCANS skills.

To develop listening and speaking skills, learners were to do such things as "communication mapping," identifying how communications and decisions were carried out,

obstacles to good communication, and ways to improve communications. They might also do role plays which they could observe and analyze and in which they could develop various communications skills.

Drawing on her previous experience as a writing instructor (especially for "non-traditional" college students), Margaret wanted to set up a class environment in which everyone was expected to speak and write. She would have learners do writing that wouldn't be collected but which would get them into the mode of thinking of themselves as people with something to communicate. These writings could, in turn, be used as notes for further discussion.

This expectation was established as a way of overcoming "the reluctance factor" often found in basic education settings. She felt it would be important for the instructor and learners to be clear about the goals they are aiming at in the group.

In addition to communications, the initial classes would focus on "understanding the big picture" of the contexts (social, economic, political, and educational) in which learners and the organization operated. This would be done through readings taken from daily newspapers, the plant newsletter, the corporate newsletter, and elsewhere. (She felt that the plant newsletter used language and covered topics of more-direct relevance to most workers than did glossier publications.)

While the above curriculum was still in a fledgling stage, Margaret anticipated that it might eventually be developed into a generic model for an "introduction-to-workplace-education-and-change" course. She was interested in learning from others who have set up similar courses.

What the curriculum actually looked like

In a report written by Margaret in December 1996, she noted that in that year "almost every hourly and salaried employee in the plant's manufacturing section participated in a 15-hour communicctions course." This course "focused on the continuous improvement of both the technical and social systems of felt production" at the plant.

> *"The communication skills developed in the class included listening, speaking and participating in a group and in one-to-one exchanges, understanding others and addressing differences constructively, responding to maintain positive relationships, asking questions, and various strategies for securing better understanding between peers and in relationships involving responsibility and authority differences. In short, the course functioned as a communication problem-solving workshop in which all members participated and contributed."*

Participants identified and then wrote about instances in which communications among employees were confused or otherwise not effective. They analyzed the causes of communication gaps and suggested ways to improve them. The participants' writings were assembled into readings which others within the class and plant could reflect on and learn from.

Participants uncovered and discussed obstacles to communications which were both individual and organizational in nature. The coordinator concluded that . . .

> *". . . developing the skills of individuals is only part of the corrective change necessary to improve communication . . . Successful improvement of these problems depends on addressing these issues from an organizational perspective as well. Good business practice, and common sense, tell us that quality and efficient production depend on both the technical and social systems of an organization functioning together to create a consistently high quality product and a working environment that effectively promotes the day to day achievement of this goal. The education program in general was described by many of the people I spoke with as an 'opportunity for everyone to get on the same page here.'"*

Margaret reported that, although the participants had previously undergone training in TQM practices and procedures and a number of new procedures and standards had been introduced in the plant, not everyone understood these changes fully or communicated as effectively as possible. She says that "the completion of these classes provides an opportunity to address the issue of standards and procedures, and to make current policy and practice clear to everyone. Policy and procedural practices are not consistently viewed by employees here, resulting in communication problems that cause a loss of time, focus, and good will." These problems were related both to technical "production procedures" and to social ("people") policies such as time off and benefits.

She felt that the classes provided opportunities for all employees to help develop and understand the "explicit procedures and consistent practice" which serve as "the foundation for effective communication in an organization." "If policies are not clearly defined and communicated, and then consistently maintained, the consequence is time lost to communication problems."

The class helped to air and rectify what employees saw as "double standards": the gaps between (a) written standards and procedures and what is day-to-day common practice and (b) high-quality standards and day-today production quotas.

The coordinator concluded that "People here want to do their jobs well. Everyone wants to workwith initiative and good will. Many of the course evaluations stressed the need for the knowledge and skills learned in the communication course to become organizational practice."

Understanding company benefits at Albany International in Menands

The process used to develop the curriculum

At the Albany International plant in Menands, site coordinator Judy Lees went through a multi-stage process of getting input from the EPT and then learners themselves. This work built on the foundation of the company's Learning Enhancement Program (LEP), which had begun with individual basic skills assessments in late 1993 followed by basic skills

classes in 1994. To supplement information gathered and lessons learned during the LEP, the coordinator collected information via (1) a WNA (which relied on focus groups, individual interviews, and document reviews), (2) initial input from a group of learners organized in a "problem solving" course, and (3) subsequent, ongoing input from those learners once the course got underway.

The content and formats used in the problem-posing curriculum

While the initial round of instruction focused on helping people to use the company's new benefits package, using the package was not itself the end goal of instruction. Rather, learners were to improve their abilities to gather information, manage it, analyze it, and make decisions with it, both as individuals and in a team setting. These information-processing, planning, and decision-making skills were seen as applicable to many problems/questions workers face on their jobs, and not just to "using the benefits package."

Judy set up each class as a "PIT" (process improvement team) which emulated the teams they worked in back on the floor. In a 40-hour course, the PIT examined the problem of "how to get essential pension-related information to interested employees so they can use it." The PIT felt that the company's previous method of merely "handing employees a book" was not enough. As an alternative, the team figured out a way to present the information via a seminar. They implemented the seminar and attracted many employees who came after work hours. As a sign of the positive impact of the course, it was at employees' request repeated twice for other employees. Also, at the end of the course when workers were asked to list in their learning logs what they had learned, several stated that they were now far better able to read the technical material they were given. Some also said that the math they had learned in class made them more appreciative of the value of the benefits package offered by their employer.

Problem-posing regarding training opportunities

Judy conducted the above "benefits-package" course with workers from the first and second shift. She took a different focus for the work she did with the third shift. Here is how Judy described the work she did with the third shift workers:

> *"During third shift, the 'Process Improvement Team' (i.e., the class) decided to deal with the issues of training opportunities. The segment of workers who were most disenfranchised were the pinseamers. Pinseaming is 'women's work' according to the floor workers and the H.R. staff, and the pinseamers on all shifts are referred to as 'the girls.' The work requires fine motor skills and extended concentration.*
>
> *"Because the research engineers and designers all work days, the pinseamers who work first and second shift have the opportunity to work with the new fabrics and seams. Most often these interesting and challenging fabrics are completed during the first and second shift when the engineers and designers are there for a portion of the shift to explain and oversee the work. As a result, the first and second shift pinseamers do more interesting work, have more contact with management, develop increasingly diverse skills and understandings, and increase their self-esteem.*

"This increased self-esteem, unfortunately, feeds a sense of superiority to the third shift 'girls' who resent the double whammy of being denied an opportunity for improvement, and then being 'dissed' for their lack of versatility.

"Using the problem solving curriculum, our 'Process Improvement Team' (i.e., the class) submitted a request to management that resulted in a designer going in two hours early for a month to train selected pinseamers on some of the more innovative fabrics and seams.

"Since that time, the machinery is becoming increasingly computerized, and it is economically necessary for the employer to utilize the complex equipment 24 hours a day. Therefore, the third shift pinseamers are being exposed to increasingly complex technology.

"A significant non-training benefit of this designer's regular training visits to third shift was the impact on the workers of management's caring enough to consider AND ACCEPT their proposal. Throughout the problem-solving process, the participants repeatedly, heatedly insisted that the 'suits' didn't care and wouldn't do anything. Management's acceptance, consideration, and implementation of the third shift class' proposal was a morale booster through all departments on the shift."

Judy felt that, although her work with the third shift workers produced positive results, she might have been even more successful if she had been more aware of the particular mentality of workers on that shift. "I'm sure I would have accomplished more if I had had some special training before I went in to third shift!" She also felt that workers would have been more motivated and encouraged to participate if management representatives came to visit the classes.

Given the above experience with workers on all three shifts, Judy feels that workers at Menands would benefit from further work on "communications, effective listening, and non-confrontational conflict resolution."

Introduction to computers at E.G.&G. Wright Products

In spring 1996, E.G.&G. Wright site coordinator Dianne Spang conducted a computer needs survey of all levels of employees, to have them assess their own abilities and needs vis-a-vis computers. The company wanted everyone to be "computer literate" as soon as possible, so that all employees would be able to use the new computer system it was investing in for the plant. (To reduce paperwork, all workers would need to be able to use e-mail and to fill out human resource department forms -- like vacation requests -- on a computer.) To use this new equipment, workers needed to know how to use the Windows program, so the survey focused in particular on identifying those who needed "pre-Windows" training.

When the survey was completed, the EPT looked at the results and decided what

the cut-off points were for various levels. (For example, an entry-level course might focus on basic keyboarding; the next level would be an overview of the MicroSoft Office program.) Based on the survey results, the coordinator and another instructor developed a curriculum for those various levels.

The result was a series of six 15-hour classes for groups composed of an average of ten representatives of various departments and job categories. Classes were voluntary, although the coordinator sent notes to particular individuals encouraging them to participate if the survey indicated particular needs.

Employees signed up to participate, and the EPT decided who would come to which class, to ensure that there wouldn't be too many employees from one department participating in any one class (and thereby hurting that department's operations).

The resulting mix of employees in each class proved to be useful, as it reinforced the cross-department communications which the original "communications" course had fostered. Participants talked about the computer classes between sessions, and those with more computer expertise helped those who had less.

Participants practiced using what they learned in class back on the job and at home. One participant, for example, learned how to better understand the home computer she had bought for her family. She in turn became a mentor to fellow workers back in the plant.

The coordinator felt that this 'back-and-forth" between the classroom and practice outside the classroom was very useful; given the limited practice time that a 15-hour course could provide. The natural mentoring which occurred led to the creation of a list of in-house "computer consultants" who were willing to share their expertise with co-workers.

The computer classes were offered first in the spring of 1996 and once again in the fall of that year. Because there was a delay in purchasing and installing the company's new computer system, the EPT agreed to hold some additional one-day "refresher" courses when the equipment was installed. The company appears willing to pay for these courses even after the federal grant runs out, because it recognizes the need for and value of such activities.

The coordinator has a written version of the curriculum used for this computer course.

Shop math at E.G.&G. Wright Products and Albany International in Menands

E.G.&G. Wright Products

In the original WNA conducted at E.G.&G. Wright, the EPT had identified the need to upgrade employees' math skills, especially those needed to handle tasks related to "geometric dimensioning and tolerancing" functions used with tools and parts. An

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instructor conducted a math skills assessment which focused on math skills used in the plant.

The resulting classes used the same kind of problem-posing mode used in the above-described communications and computer courses, asking learners to identify work-related math problems and then focusing learning activities around those problems.

The math course lent itself to generating "numbers" (quantitative data) about learner abilities ("You either get the right answer or you don't.") These "numbers" could be summarized in each learners' portfolio.

Albany International at Menands

In late 1995 through 1996, the Menands program turned to math as its primary focus. College math-and-business instructor Bill Eckert was hired to run a series of mathematics courses which covered such topics as algebra, trigonometry, geometry, probablility and statistics, use of the scientific calculator, charts, conversions, and personal and corporate finance. Classes were divided into three 10-week sessions consisting of one 2-3-hour class each week.

The instructor encouraged learners to find relevant tasks from their daily lives on and off the job to focus instruction on. For example, learners might review the math required to understand their company benefits package or how to build a deck.

To assess and track learner skills and needs, Bill would conduct periodic "teacher-made" tests. He would share results with the learners but not with management, to clarify how learners were doing. He would give general but not worker-specific feedback to management, summarizing in general terms what learners were learning and feedback which learners gave on an end-of-session evaluation form.

Learners said that the courses were "interesting," enabled them to help their children with schoolwork, helped them better understand job-related math, inspired them to go back to college, and helped them with home projects.

Lessons learned about the curriculum model

The six sites which implemented learning activities produced a wealth of tools and lessons other workplace educators can learn from. One important -- perhaps the most important -- lesson learned in the CLCI is that there are many learning needs which a workplace basic skills effort can focus on. More specifically:

Each site identified a number of problems to focus its basic skills program on. These ranged from "improving communications" to "introducing workers to computers" to "shop math" to "understanding benefits packages." No single set of lesson plans will be relevant for all workers, regardless of their background or the contexts they work in.

It is important for an EPT to have the flexibility -- and a comprehensive, "open-minded" assessment process -- to be able to identify the range of learning needs represented in a

particular workplace.

In turn, education staff need the expertise, time, and other resources to be able to put together a package (or "battery") of basic-skills-related services which are meaningful and effective in responding to the learning needs which continually evolve in a typical, dynamic workplace.

We also learned that a basic skills program which focuses on "problem-posing" and "problem-solving" does appeal to a variety of types of companies and employees. However, that concept can be interpreted in a variety of ways, as shown in our examples above. The key is to recognize that adult basic education can help people become active thinkers and problem-solvers, and that they can use those skills at work and in other life contexts. At the workplace, it is important for others in the organization -- managers, supervisors, union representatives, and co-workers -- to support learners when they try to use their problem-solving skills back at work.

CHAPTER 5

Portfolio Assessment

Each educational planning team (EPT) was expected to design and use assessment activities to identify learner needs, abilities, and interests, and to track learner progress. Sites were asked to use portfolio assessment techniques, and the resulting information was to be used by the learner and instructor to encourage and guide the learner. Learners' assessment information could also be summarized in an aggregate, anonymous form and presented to the EPT and other audiences interested in understanding what was going on.

This chapter (a) summarizes the assessment-related guidelines presented to the sites, (b) describes how the sites interpreted those guidelines, and (c) discusses some "lessons learned" about using portfolio assessment in workplace education.

Guidelines for using portfolio assessment

Individual assessment is, in the CLCI model, not something that occurs only at the beginning and/or end of an instructional period. Rather, it is seen as a tool to involve the learner and teacher in an ongoing, thoughtful dialogue about the learner's needs, abilities, interests, and progress. It also can be linked to other program components, especially workplace needs assessment, curriculum, and evaluation.

How "assessment" has been viewed to date

Until recently in the workplace education field, the term "assessment" has tended to be associated with . . .

1. a test of some kind (either a standardized test or one customized to the particular demands of participants' jobs), and/or

2. a literacy task analysis, a procedure for determining the literacy skills required for particular jobs and, subsequently, whether workers in fact possess those skills. Such an analysis would clarify for curriculum developers who needed to learn what to do their jobs better.

Assessment from a collaborative perspective

The CLCI model emphasizes collaborative decision-making as an outcome of -- and process for -- workplace basic education. We proposed that assessment follow these guidelines:

Assessment should be seen as one of several decision-making tools which stakeholders can use to clarify learning goals, map out strategies for meeting those goals, and monitor

and refine those strategies. Assessment should thus focus less on identifying deficits and more on clarifying goals and abilities (resources, capacities) of the organization and individuals involved, and on mapping out strategies for using existing resources (knowledge and skills) -- and building on and further strengthening them -- to enable the organization and individuals to improve themselves.

- *As such, assessment has much in common with the monitoring tools used in "total quality management" and related approaches to organizational development which emphasize continuous planning and improvement of operations to meet customer needs.*

- *Because workplace education needs to focus on changing both individuals and organizations, assessment likewise should focus on both individuals and the larger organization. Assessment might thus be divided into "individual assessment" and "workplace (organizational) assessment" procedures.*

- *Assessment procedures need to focus on information which stakeholders really need to make decisions, rather than on less-relevant information which distracts stakeholders from what they are really trying to accomplish in their educational efforts.*

- *Assessment procedures should be user-friendly and make it easy for stakeholders to get involved in program decision-making.*

- *Individual and workplace needs assessments should be integrated with each other and with related functions of program evaluation, curriculum development, and staff development.*

- *For many individuals in a workplace, assessment is often associated with "tests," "performance appraisals," and similar situations in which individuals are judged or evaluated. Assessment is thus often seen as a potential threat. Assessment procedures must therefore be presented to learners and other stakeholders as a positive decision-making tool. Those involved must maintain the confidentiality of what is said and avoid using it to punish or in any way jeopardize those involved.*

Portfolio as a container for various kinds of assessment procedures and information

We proposed that a portfolio should not be seen as a rigid, prescribed assessment procedure. Rather it should be viewed as a vehicle for collecting and using information about learner needs, interests, abilities, and progress. This information should, in turn, be used by stakeholders -- learners, facilitators, and others -- to shape learning activities so that agreed-upon goals are met.

What information did we want EPTs to collect?

Individual assessment has many of the same purposes and procedures associated with workplace needs assessment and program evaluation. All three are mechanisms for collecting some kind of information which, in turn, someone will use to make some kind of decision.

When planning any of these three decision-making functions, it is important to be clear

about what kind of information will be collected. Sites were urged to use portfolios to document how learners dealt with the various kinds of SCANS tasks they needed in their jobs.

While we pointed them to various references about portfolios and workplace assessment and evaluation (See the References in Chapter 8.), sites were generally left on their own to determine what to include in their portfolios, and how to gather, organize, and use that information.

How the sites interpreted portfolio assessment

The Central Planning Team provided the EPTs with above kinds of guidelines as well as various handbooks and some professional development workshops, to help them figure out how they might use portfolio assessment methods in their sites. In practice, the sites paid various amounts of attention to assessment and produced several different types of assessment activities.

Most sites made some attempt to use a portfolio approach, as described below:

- *At the Albany International plant in Homer, portfolios were the medium for both assessment and instruction. As described in Chapter 4, coordinator Paula Hayes took a creative approach to portfolio assessment which blurred the line between assessment and learning as the portfolio became a vehicle for learning rather than just a means to think about or assess learning. Workers used portfolios to collect samples of the paperwork they did on the job, work with instructors to clarify the strengths and limitations of that paperwork, and then get individualized or group instruction and practice to make needed improvements. This process helped keep learning activities focused on priority learning needs and produced clear documentation of learner needs and progress. See pages 29-32, "Paper flow at Albany International at Homer," for more details.*

  Paula concluded that this use of portfolios is particularly useful in a workplace education initiative where procedures and operations are the focal point. This process also is helpful to a company which does not have written procedures in place. A company can workwith workers to develop written procedures, help them master those procedures, and then have a written record of what each worker learned. This is especially important for companies undergoing ISO9000 certification.

- *At the Albany International plant in Menands, coordinator Judy Lees tried a number of assessment tools, with varying degrees of success. She wanted to be able to document learners' abilities to understand and use the company's financial benefits system. She summarized this experimentation as follows:*

  "In terms of reading/writing/math, the worksheets I made up tied to various pages

in the retirement handbook and medical coverage manual were the best I could do. However, to keep learning non-threatening, so that I didn't lose participants, I found it beneficial to allow workers to collaborate. . . . Coming from the American public school mentality, I find it uncomfortable not to have a pre- and post-assessment for each individual. However, the reality is that these individuals work as teams in their workplace, and the ability to participate in effective collaboration is of sufficient value that I guess I've become willing to have only a pre-post assessment of the team's abilities (rather than of individual abilities)."

After the first round of instruction, Judy said that she had questions about how to document the impact of the program on the workplace itself. This is especially difficult because many of the skills being focused on are not easy to quantify. Another problem with measuring impact is the fact that supervisors and others who might be able to give feedback about worker performance are busy with other duties and don't have the time to observe and reflect on subtle changes in worker "communication," "problem-solving," and "decision-making" skills.

Beyond measuring transfer of learning is the question of how to ensure or facilitate such transfer. In other words, it is not enough to try to determine whether learners are using what they've learned back on the job; it also necessary for workplace educators to figure out what needs to be done to help workers effectively apply what they have learned.

Judy also wants to be sure that whatever is measured in assessment activities is in fact what is taught in her courses. In other words, it is not fair to teach one thing and then judge the effectiveness of the course by measuring something else.

For a math-for-statistical-process-control course at the Delphi plant in Rochester, instructor Gina Porter asked each participant to keep a folder with examples of his/her work. She later acknowledged, however, that this course was only a six-hour course and could therefore produce only a limited amount of evidence.

As she developed a portfolio system, she wasn't sure whether the portfolios should be oriented to showing mastery or progress or both. (Mastery, she felt, is useful for accountability and motivation for both individuals and the company.)

Once Gina received the learners' portfolios, she reviewed them, using rubrics she had developed, to clarify the extent to which they had mastered what was being taught. Her rubrics were developed with input from EPT members. To create the rubrics, she identified several learning objectives and then noted possible indicators which would show whether those objectives were met.

After Gina came Tom Wager, who was to run a problem-solving course in another section of the plant. Tom worked with the external evaluator, Don Cichon, to develop several assessment instruments to document what learners had mastered. In one assessment activity, learners were asked to identify steps in the problem-solving model, name and describe the purpose and mechanics of five problem-solving tools,

and define the difference between consensus and compromise. Learners were also asked to rate themselves in terms of five SCANS skills and to also rate the course and instructor. The resulting assessment and evaluation data were compiled into a "site portfolio" for Delphi.

Tom also noted a number of anecdotes which served as evidence of positive program impact. One woman, for example, said that as a result of participating in the problem-solving classes, she was now more involved in committees at work and in similar committees in her church. She said that, prior to the class, she was always afraid to speak up and get involved. Now she was more confident and knew how to play a constructive role in team situations.

Tom felt that the most tangible evidence of positive program impact was the action plans developed by the teams. These were concrete indicators that the teams were in fact now able to carry out the problem-solving process covered in the course.

At the Eastman Kodak facility in Rochester, instructors did a lot of work to develop the use of portfolio assessment. Staff came away convinced of the value of this form of assessment. They stated that portfolios . . .

> *". . . enable us to assess growth in a contextualized workplace format that specifically addresses the objective of the training. They allow us to show growth in non-educationally-traditional SCANS skills. They do not assess in terms of grade levels, but instead in a way which fits well with capability certification tools. They are productive educational tools which allow the learner to develop skills in self-evaluation and goal-setting."*

For a workplace communications course at the E.G.&G. Wright plant, site coordinator Dianne Spang used portfolios for both individuals and for groups. For each learner, she gathered artifacts which showed what each learner was producing. She also asked them to reflect on the activities and give her feedback.

She also developed a post-course survey in which individuals clarified (a) whether and how they improved various SCANS competencies in the class, (b) whether and how they are now using those competencies back on the job, and (c) what impact those uses of SCANS have had on the workplace.

She also pulled information from those individual portfolios to include in a class portfolio for each group. That portfolio included the group's action plan.

Despite her creative use of portfolios, Dianne felt it would have been helpful if in the initial stage of the project the Central Planning Team had given her more ideas on what to include in the portfolios (especially for the outside evaluation). She felt that the site EPT did not ask for highly-quantified data, but that she nonetheless would have liked to know how to develop systematic rubrics which might produce such data in case anyone wanted it.

To tailor the portfolio to an "introduction to computers" course, Dianne worked with EPT members to develop rubrics for particular computer-related skills needed in the plant. She then referred to those rubrics when talking with individual learners about their needs and skills. From these discussions came recommendations for next steps which each learner needed to take to improve particular skills.

For each skill area, the following rubrics were used to indicate the levels the learner had for that skill area:

- *Expert*
- *Proficient*
- *Intermediate*
- *Novice*

The skill areas focused on in the course and in the portfolios included:

- *-- keyboarding*
- *-- managing equipment (e.g., turning the equipment on and off...)*
- *-- mouse skills*
- *-- management of files*
- *-- creating a document*

The above rubrics emerged from an initial computer skills survey and from subsequent discussions with EPT members and learners.

In her discussions with learners, the coordinator not only focused on how learners used computers on the job but in their lives at home as well. The company saw this focus on "not-strictly-job-related" skills as appropriate, as it recognized that, by using their skills at home, learners would be "reaffirming" (i.e., reinforcing) the computer skills they were learning at work. These skills would then be transferred back to their performance on the job.

The coordinator saw the portfolio as a focal point for discussions with learners in which they could produce sample work over time, to show initial abilities and abilities as they changed. The samples would include both "good" and "weaker" work to show the range of abilities in various areas, progress, etc.

The company never pushed the coordinator to use standardized assessments. Instead it encouraged her to develop tools which were customized to the particular learning needs of the employees and plant.

Dianne Spang concluded she will likely continue to use portfolios in future workplace education programs. She would also like to do a follow-up assessment via an on-line survey or other means. In that survey, the coordinator would ask the participants (a) whether and how they are using the skills they learned in the courses and (b) what else they feel they need help with.

Dianne feels that, though useful for learners and instructors, portfolios can sometimes seem inscrutible to other audiences like employers. She recommends that the evidence and terms used in portfolios be boiled down into language which an employer can use quickly, perhaps as part of an employee's professional development plan.

Lessons learned about portfolio assessment

The educators who used the above forms of portfolio assessment all affirmed that this was an appropriate way to generate useful information for learners and other stakeholders. However, one down side of using portfolios was the amount of time required to design them (e.g., to work with learners and others to figure out what information to store in the portfolio and to create rubrics for rating the quality of those artifacts) and then use them properly (i.e., portfolios are places for thoughtful reflection and dialogue about learning over time, not merely a vehicle for quick snapshots of learner abilities).

In addition to requiring time of instructors and others who are to use them, portfolios require instructors to have special kinds of expertise. Special training, resource materials, and supervision need to be provided to anyone attempting to use portfolio assessment in workplace settings.

Finally, those who are interested in going to the effort to use and further develop these forms of assessment must keep in mind the limited background and attention span of some employers, funders, and others who presumably should be interested in good-quality assessment data. It can be frustrating to go to the effort of developing high-quality assessments and then find that the decision-making audience the report is prepared for simply doesn't have the expertise and/or time to understand and use the information you are providing them.

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CHAPTER 6

Program Evaluation

As described in the preceding chapters, the educational planning teams were responsible for conducting workplace needs assessments and designing and carrying out instructional and portfolio assessment activities. One other major area of responsibility for EPTs was the planning and conducting of program evaluation activities with the assistance of two outside evaluation consultants.

The outside evaluators served as resource persons on the project's Central Planning Team and worked with each site to develop an evaluation plan and evaluation tools geared to the specific outcomes which the sites were aiming at. The evaluators produced a four-part series of evaluation reports which summarize this process of planning and carrying out a customized team evaluation and the findings which emerged from the evaluations at each site. (See the References in Chapter 8.)

Here are some highlights of (a) arguments for a "team" approach to evaluation, (b) the evaluation process used at each site, (c) project outcomes identified in the site evaluations, and (d) lessons learned about the use of "team" evaluation.

Arguments for a "team" approach to evaluation

CLCI drew on prior research and development projects which had developed "team-based" or "collaborative" approaches to evaluating workplace education programs. (See References in Chapter 8.) The proponents of a team approach to evaluation argue that:

- *Too often, "evaluation" has not been given much priority in workplace education. It has often been seen more as a burden or distraction and as something done by an outside evaluator who generates marginally-meaningful information for a funder or someone other than those actually doing the work.*

- *Those organizing a workplace education effort instead need to see evaluation as a vital component, a way to continually keep efforts efficiently focused on priority needs and objectives, in the spirit of "continuous improvement."*

- *It is important for a wide range of program stakeholders to be involved in the evaluation process (via an educational planning team, or EPT), to help those stakeholders better understand the program, feel ownership for it, and invest in making the program a success.*

- *EPT members are busy people and need an efficient process through which they can participate in the planning and implementation of the evaluation. This includes reflecting on and making decisions based on the information generated by the evaluation.*

- *EPT members need to decide what kinds of information they really want the evaluation to generate, to ensure relevance and efficiency of the evaluation. In turn, those collecting information need to ask the right kinds of questions and use the right kinds of information-*

gathering techniques. This typically requires custom-designing of interview guides, tests, and other evaluation tools.

□ To do this work, EPT members need time, expertise, and a commitment to doing high-quality, meaningful evaluation.

The evaluation process used

Evaluation activities took place at two levels of the project: at the "statewide" level (done by the two evaluation consultants in their interactions with the seven sites) and at the "site" level (done by the evaluation consultants in collaboration with the educational planning teams).

The evaluation consultants wanted to serve the dual role of "external evaluators" (to make sure relevant information was prepared for the funder and other outside audiences) and "facilitator of internal evaluations" to be conducted by each EPT.

The consultants spent much of the first year of the project getting to know the sites and working with the EPTs to develop site-specific evaluation plans. Each site was to develop a "site portfolio" which presented what it hoped to accomplish in its education program, evidence of what actually happened, and the process each site went through to get those results.

In the second and third years of the project, the EPTs prepared reports with and for the evaluators, and the evaluators summarized those reports in annual project-wide evaluations.

In addition to helping each site EPT to design and carry out an evaluation, the evaluation consultants worked with the Central Planning Team to clarify goals and indicators of progress for the CLCI project as a whole. For example, the CPT wanted to provide an infrastructure (of funds, training, and technical assistance) to help the site-level EPTs do the work they wanted to do. The CPT also wanted to field test, evaluate, refine, and disseminate "the CLCI model."

In their four-part evaluation report, the evaluation consultants summarized what happened at the levels of both the EPTs and the CPT.

Project outcomes identified

The evaluators' final reports indicate that:

□ CLCI was fairly successful in developing and testing "the CLCI model" described in this handbook.

□ CLCI was fairly successful in providing training and other technical supports to help the sites meet their goals.

□ As the project wound down, it was not so clear to what degree and how the CLCI model would be replicated elsewhere after the federal grant ended. While some sites in New York State were likely to use elements of the model and CPT members had disseminated the model nationally via workshops and publications, the future of workplace education in general and the CLCI model in particular were not clear.

□ It is difficult to state with much certainty what impact the project had on workplace operations in each site, even though the curriculum focused heavily on skills and tasks considered high-priority by EPTs. This was in part due to the difficulty of quantifying a direct link between education (or training) and "productivity" (productivity being something determined by many factors other than worker skills or the education they receive). Nonetheless, most sites could cite rich anecdotal information showing positive impact on the workplace and workers.

□ Participation of employers and workers in EPT activities varied from site to site and year to year. This was due in part to the many competing demands place on employers and workers. It might have also been due to internal factors in the organization's culture (e.g., low priority to nurturing employee growth) beyond the control of outside educators.

Lessons learned about team evaluation

The above-described evaluation operated at two levels and in seven sites. In each site, a multi-stakeholder educational planning team was asked to get involved in designing and carrying out evaluation activities. As might be expected in so complex an evaluation, the team evaluation model worked better in some sites than in others.

Overall, however, the response of sites was generally favorable about the evaluation model used. However, experience also showed that evaluating workplace education programs beyond a superficial level is not easy. Here is a summary of feedback from the sites:

□ Most site coordinators welcomed the involvement of outside evaluation consultants who took a "facilitator" rather than "inspector" approach to evaluation.

□ All agreed that the evaluation process needed to be kept simple while at the same time focused on meaningful, reliable information about program impact and best practices.

□ The success of the EPTs and the work they did (including their evaluations) varied from site to site. Success depended on the leadership and vision present within the team; the climate of the company (some sites were undergoing rapid change which prevented people from focusing on EPT tasks); how much time EPT members could give to planning, implementing and paying attention to an evaluation; and the expertise which EPT members had about workplace education and evaluation.

□ Evaluating outcomes is a challenge in a workplace education program, as it requires all concerned to identify reasonable objectives (both at the start of the project and then on on ongoing basis), set up a system for monitoring progress toward those objectives, and then take the time to monitor progress. In the CLCI project, we adapted the Kirkpatrickmodel of workplace training evaluation, and tried to look for several levels or types of outcomes. We wanted to know whether . . .

(a) the learners were mastering the skills and knowledge being taught in their particular site,
(b) the learners were actually applying the newly-acquired skills and knowledge back in their jobs, and
(c) if so, whether the learners' applications of those skills was having a positive impact on the

organization.

We were trying to get away from the "smiley sheet" approach to evaluation in which learners merely gave vague feedback about whether they liked the course or not. This was easier said than done, however, as busy instructors and learners naturally tended to focus on their primary goal of "learning" rather than "evaluating" and thus couldn't always give the time to evaluation that the evaluators would like. For these non-evaluation-specialists, evaluation naturally seemed to be something "academic" or done to satisfy funders (or keep evaluators employed!) rather than something really useful for those doing the work of teaching and learning. (This was despite considerable effort by the evaluators to discuss the value of evaluation and to customize the evaluation to each site.)

In addition to a natural resistance to evaluation, it is under the best of circumstance also difficult to trackwhether and how learners are actually using what they learn back at work and, if they are, what impact such applications have on complex, ever-changing organizations. And what are we to conclude if a consciencious learner does try to use his new skills but his productivity goes down afterward? Is the education program a failure? Is it fair or accurate to attribute a change (positive or negative) in job performance to a single factor like an education program?

For these reasons it was difficult to systematically document the impacts of the education activities on the many learners at each site. There was nonetheless evidence that the program did have significant impact on several companies, especially in terms of changing their approaches to training and team management.

One company, for example, reported a year after CLCI formally ended that it had adapted many of the elements of the CLCI model, including:

- *The company had re-designed all its basic skills activities to build in a fuller range of SCANS competencies (rather than just focus on "raising workers' reading scores").*

- *The company was now using project-based learning (rather than traditional skill-and-drill workbooks which had learners develop skills outside of context), with the expectation that learners would leave the classes with particular strategies for workplace improvements in hand and then try to apply them back on the job.*

- *The company had reconfigured its human resource development strategies to ensure that managers encouraged learners to use what they were learning in the education classes and then reward them if positive improvements in workplace operations occurred as a result.*

- *To further re-inforce the connection between the basic skills program and the workplace, the company was now bringing technical trainers and supervisors into the basic skills classroom to serve as resource persons and guest instructors.*

- *The company was taking this experience with its current workforce a step further and getting more involved in local school-to-work activities. Company personnel were explaining to local school teachers what skills workers needed and the innovative educational practices which could be used to help learners learn them.*

CHAPTER 7

The Central Planning Team

As explained in previous chapters, the seven-site CLCI project was managed by a Central Planning Team (CPT) composed of representatives from the sites, the project director (the workplace education coordinator at the New York State Education Department), two evaluation consultants, and a curriculum advisor.

The purposes and make-up of the CPT emerged in the first six months of the project, when key members on what became the CPT realized that some kind of collaborative decision-making structure would be needed to facilitate communications and planning across a seven-site project spread across northern New York State.

These decision-makers also realized that such a structure would be consistent with the team decision-making which was central to what was being proposed at the classroom and site levels. These decision-makers agreed that they should themselves practice what they were preaching, form what they eventually called the Central Planning Team, and use it as a vehicle for a collaborative process of setting goals for the project, ensuring that the sites got the supports they need, and monitoring progress and needs at the site level.

This collaborative structure put greater responsibility and control for the project into the hands of site representatives and outside evaluators and consultants. As such, it was a departure from more-traditional ways of running statewide workplace education projects. More typically, only a small number (sometimes one person) of people set guidelines, distribute funds, and monitor program quality for a multi-site government-funded initiative.

Recognizing the need to make this collaborative process as efficient and responsive as possible to needs and opportunities as they arose, the CPT set up several communications channels (e.g., periodic meetings, mailings, site visits, and one-to-one phone calls). The project also set up an electronic listserv for CPT members, but this was used infrequently, largely because few members had Internet access during the life of the project.

The exact make-up of the CPT varied over the three years, but shown below are people who attended CPT meetings fairly regularly. The names of the site coordinators appear regularly elsewhere in this text. (Those interested in learning more about CLCI are urged to contact any of these resource persons for more information.)

Over the three years, the CPT met three or four times each year, to give updates on what was happening at the sites, what the evaluators and curriculum consultant were doing, and funding-related information, as well as to plan staff workshops. The energy of the CPT ebbed and flowed over three years, as members had to deal with other projects they were working on.

Overall, members agreed that a multi-site project can benefit from a well-run collaborative decision-making structure, but that such a team requires commitment, time, expertise of members and clear goals, timelines, and responsibilities for all involved.

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CHAPTER 8

References

Shown below are reference materials related to the topics covered in this guide. Many of these were provided to the EPT members during the initial staff training workshops and subsequently over the life of the project.

Evaluations of the Collaborative Learning for Continuous Improvement Project

Cichon, D. and Sperazi, L. Collaborative learning for continuous improvement: Evaluation final report. Albany, NY: New York State Education Department, November 1997. Evaluators Don Cichon and Laura Sperazi issued four volumes of evaluation reports about this three-year federal workplace basic skills project:

Volume I: Executive Summary
Volume II: Program Goals and Accomplishments
Volume III: Vision and Realization
Volume IV: Site Portrayals

Collaborative Models of Workplace Education

Belfiore, M.E. (1996) Understanding curriculum development in the workplace: A resource for educators. Don Mills, ON: ABC CANADA. Part of ABC CANADA's series on collaborative workplace education, this guidebook focuses on options for curriculum developers.

Evaluation Research (November, 1992). Workplace education: Voices from the field. Proceedings National Workplace Literacy Program Project Directors Conference, September 1991. Washington, D.C.: Division of Adult Education and Literacy, U.S. Department of Education. Representatives of 39 U.S. federally-funded workplace education programs give feedback on such key components as partnership building, curriculum development, staff development, assessment, evaluation, and recruitment. This was a rare opportunity for practitioners to speak directly to federal policy makers.

Fingeret, A. and Jurmo, P. (1989) Participatory literacy education. San Francisco: Jossey-Bass. Makes the case for a participatory approach to literacy education. Presents case studies and a historical overview of such efforts. Two chapters describe how this approach was used in workplace settings.

Folinsbee, S. and Jurmo, P. Collaborative workplace development: An overview. Don Mills, ON: ABC CANADA, 1994. Gives arguments for and a model of a collaborative, team-based approach to workplace education and organizational development.

Hull, G. (1997). Changing work, changing workers. Albany, NY: State University of New York Press. A collection of articles from researchers and practitioners which question the

assumptions on which many workplace education programs have been based.

Jurmo, P. (April 1994). "Education in the new workplace." Literacy at Work, p. 4. Describes a new, "collaborative" perspective on workplace education in the U.S. Collaborative programs involve a broader range of stakeholders in setting goals and running the program.

Sarmiento, A.R. and Kay, A. (1990). Worker-centered learning: A union guide to workplace literacy. Washington, D.C.: AFL-CIO Human Resources Development Institute.Calls for greater worker involvement in workplace education programs.

Schultz, K. (December 1992). "Training for basic skills or educating workers? Changing conceptions of workplace education programs." Berkeley, CA: National Center for Research in Vocational Education. Shows how narrowly-defined workplace education programs violate principles of adult education and high-performance management. Suggests ways of analyzing the options available to practitioners vis-a-vis philosophy, curriculum, assessment, and the roles of stakeholders.

Soifer, R. et al. The complete theory-to-practice handbook of adult literacy: Curriculum design and teaching approaches. New York: Teachers College Press, 1990. A summary of how to use whole language in adult literacy education. The authors developed this model in auto manufacturing plants in the Detroit area.

Stein, S.G. (May 21, 1993). "Continuous learning for continuous improvement, or basic skills, worker empowerment, and high performance work organizations: Why you can't have one without the other." Keynote address at May 1993 annual conference of the Texas Workforce Education Consortium, Dallas, TX. Calls for new forms of workplace learning which more directly integrate learning into day-to-day shop-floor work activities.

Stein, S.G. and Sperazi, L. (October 15, 1991). "Workplace education in context: A chart comparing traditional and high performance work organizations." Part of Tradition and change: The role of workplace education in the transformation of the workplace, a paper presented by Sondra G. Stein at the annual meeting of the American Association for Adult and Continuing Education, in Montreal. Succinctly contrasts features of traditional and high-performance workplaces. In particular, compares how workplace education programs in traditional and high performance workplaces approach goal-setting, curriculum, scheduling, assessment, evaluation, and other key components.

Turk, J. and Unda, J. "So we can make our voices heard: The Ontario Federation of Labour's BEST project on worker literacy." In M.C. Taylor, G.R. Lewe, & J.A. Draper (eds.), Basic skills for the workplace (pp. 267-280). Toronto: Culture Concepts. Presents an alternative perspective on workplace education which features greater worker involvement and a more holistic view of what an education program should focus on.

Workplace Needs Assessment

Folinsbee, S. and Jurmo, P. Collaborative needs assessment: A handbook for workplace development planners. Don Mills, ON: ABC CANADA, 1994. Presents a step-by-step process for conducting a workplace needs assessment.

Portfolio Assessment and Program Evaluation

Barker, K.C. (October 1991). A program evaluation handbook for workplace literacy. Ottawa: National Literacy Secretariat. An overview of issues and approaches related to workplace literacy evaluation.

Fingeret, H.A. (1993). It belongs to me: A guide to portfolio assessment in adult education programs. Durham, NC: Literacy South. A comprehensive guide to the use of portfolio assessment for adult literacy programs. Can be adapted for use in workplace programs.

Jurmo, P. and Folinsbee, S. Collaborative evaluation: A handbook for workplace development planners. Don Mills, ON: ABC CANADA, 1994. Presents a step-by-step process for conducting a team-based evaluation of a workplace basic skills program. Evaluation is seen as one component of a collaborative approach to workplace education.

Jurmo, P. (1994). Workplace education: Stakeholders' expectations, practitioners' responses, and the role evaluation might play. East Brunswick, NJ: Literacy Partnerships. Begins with an overview of purposes for and approaches to workplace basic skills education. Then analyzes the current state of evaluation in workplace programs. Profiles a number of projects which support the creation of a new, "collaborative" approach to workplace education. Concludes with recommendations for workplace educators, employers, unions, funders, and learners.

Kinsey, D.C. (1978). Evaluation in nonformal education: The need for practitioner evaluation. Amherst, MA: University of Massachusetts, Center for International Education. Shows why adult educators should see evaluation as a useful tool for improving their program rather than an external imposition.

Lewe, G.R. (1993). Literacy task analysis. New Westminster, British Columbia: B.C. Construction Industry Improvement Council. Presents an alternative approach to literacy task analysis, which more actively involves learners and focuses on identifying skills needed for advancement within trades.

Lytle, S.L. and Wolfe, M. (1989). Adult literacy education: Program evaluation and learner assessment. Columbus, OH: ERIC Clearinghouse on Adult, career, and Vocational Education. A comprehensive overview of the current state of adult literacy assessment and evaluation. Recommends new ways of looking at these important program functions which emphasize greater involvement of learners and other stakeholders in analyzing needs and progress of individuals and programs.

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beyond focusing solely on changes in decontextualized skills and/or job performance to tracking impact on learner beliefs about literacy, self, and education; and improved literacy practices at work and elsewhere.

Philippi, J. W. (May 1992). How do you know if it's working? Evaluating the effectiveness of workplace literacy programs. Springfield, VA: Performance Plus Learning Consultants, Inc. Summarizes issues and options for evaluators of workplace education programs. These include the transition from outdated hierarchical work systems, creating evaluation responsive to stakeholder interests, and integrating education with organizational development.

Sarmiento, A.R. (1993). "Alternative designs for evaluating workplace literacy programs." Proceedings of U.S. Department of Education work group conference on "Design Guidance for Evaluating Workplace Literacy Programs." Research Triangle Park, NC: Research Triangle Institute. Argues that workplace education programs funded by the U.S. Department of Education have not been adequately evaluated. Says that program goals need to be more clearly articulated and not defined narrowly as improvement of only the literacy skills required by participants' current jobs. States that education programs require a supportive context -- one committed to transformation to a new way of organizing work -- to produce meaningful, lasting results.

Sperazi, L. and Jurmo, P. (July 1994). Team evaluation: A guide for workplace education programs. East Brunswick, NJ: Literacy Partnerships. Shows stakeholders in workplace education programs how to plan and carry out a collaborative evaluation. Based on an 18-month project funded by the National Institute for Literacy.

Sperazi, L. and Jurmo, P. (June 1994). Team evaluation: Case studies from seven workplace education programs. East Brunswick, NJ: Literacy Partnerships. Describes how collaborative evaluation was carried out in seven workplace programs (six in the U.S. and one in Canada) and analyzes lessons learned in the seven sites -- strengths, limitations, and needed improvements of the team evaluation concept.

Sticht, T.G. (April 20, 1991). Evaluating national workplace literacy programs. El Cajon, CA: Applied Behavioral & Cognitive Sciences, Inc. Summarizes issues and options for evaluators of workplace education programs. Encourages stakeholders to see evaluation as a tool for stregthening their programs -- in the same "spirit of inquiry" program participants should be adopting.

Taylor, M.C. (1991). " How to approach worker testing and assessment." In M.C. Taylor, G.R. Lewe, & J.A. Draper (eds.), Basic skills for the workplace (pp. 183-202). Toronto: Culture Concepts. Summarizes job-related goals of workplace education programs, standardized and alternative ways of assessing learner progress in literacy programs, and the implications of using those assessment tools in workplace settings. Says that, when selecting assessment tools, stakeholders need to be clear what the education is program is trying to achieve and should involve learners in decisions related to program goals and assessment procedures.

High-Performance Organizations

Sarmiento, T. (July 1991). Do workplace literacy programs promote high skills or low wages? Suggestions for future evaluations of workplace literacy programs. Labor Notes, a monthly newsletter of the Center for Policy Research of the National Governors Association, Washington, D.C. States that a workplace education program have the choice of preparing workers for old, "top-down" workplaces or new, "high performance" organizations. In the latter, new workplaces, education programs should be structured in the same collaborative way in which other workplace activities are carried out.

Senge, P.M. (1990). The fifth discipline: The art and practice of the learning organization. New York: Doubleday/Currency. Makes the case for a new kind of workplace which sees ongoing, collaborative learning and decision-making as the thread which weaves the organization together.

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